

## Appendix

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## Appendix A

**Data CD Inventory:**

**Eucha\_OSU\_2002\_SWAT2000.pdf**

Final report published 8/9/2002 in Acrobat format.

**Eucha\_OSU\_2002\_SWAT2000\_Appendix.pdf**

Final report appendix published 8/9/2002.

**Eucha\_OSU\_2001\_SWAT99.2\_Report.pdf**

Previous report published 11/1/2001.

**Eucha\_OSU\_2001\_SWAT99.2\_Appendix.pdf**

Previous report appendix published 11/1/2001.

**loadings by subbasin7\_18\_02.xls**

Calibrated SWAT estimated load for current conditions at each City of Tulsa water quality station and by subbasin.

**Decatur PCS.xls**

City of Decatur Permit Compliance System data, provided to OSU by the City of Tulsa.

**Water Quality Data.xls**

Water quality observations by the City of Tulsa, US Geologic Survey and historical measurements. Provided by the City of Tulsa.

**Loadest2 Daily Estimates.xls**

Daily load estimates at each City of Tulsa water quality station as estimated using Loadest2 software.

**Ground Truth (Folder)**

Ground truth data sent to Applied Analysis Inc. by OSU. Folder contains pictures, descriptions and an ArcView Shapefile of field locations and boundaries.

**Litter (Folder)**

ArcView Shapefile of poultry house locations provide by the City of Tulsa. Projection is UTM 1927 Zone 15.

## Appendix B

**Development of Current Digital Land Use Data Using 30 m TM (Landsat 7  
ETM+) Imagery for the Lake Eucha/Spavinaw Basin**

**Prepared for**

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**April 29, 2002**

**Lake Eucha Basin Project**

**Introduction**

The purpose of this project was to develop a digital land use data layer using recent (June 12, 2001) 30 m resolution Landsat TM imagery for the Lake Eucha/Spavinaw Basin. Satellite imagery has been used since the 1970's as an accurate and cost effective tool for deriving vegetation and land cover information. Digital processing techniques involving the statistical analysis of image data representing various portions of the electromagnetic spectrum allows for definition of areas that reflect solar radiation in a similar manner. These areas may then be related to land cover or vegetation types through the use of ground truth information.

For this project, a traditional classification method was used where pixels are selected that represent patterns or land cover features that can be recognized or identified with help from other sources, such as ground truth data, aerial sources, or maps. Knowledge of the types of information desired in the end product is required prior to the onset of classification. By identifying patterns, the software is trained to identify pixels with similar characteristics. Applied Analysis Inc. (AAI) relied on Oklahoma State University to assist in collection of geo referenced ground truth data to ensure the accuracy of the

final product. This type of landcover data can be used to conduct watershed assessments, resource inventories, and to detect change in ecosystems.

### **Ground Truth**

Ground truth data and information was provided to AAI by Dr. Daniel Storm, Oklahoma State University. The ground truth data included 1 meter Digital Orthophoto Quads (DOQ) for the entire Lake Eucha Basin. This data is low elevation panchromatic photography and was registered to the 12 June 2001 Landsat 7 ETM+ imagery. The DOQ's were flown during the winter of 1995. Additional ground truth information included ARCVIEW polygon shape files of field visited sites. Attributes associated with these shape files included geographic location, cover type identification and site specific observations regarding field health, presence of rocks, exposed soil and evidence of cattle grazing. These shape files were also registered to the 12 June 2001 Landsat 7 imagery.

### **Methods**

This project mapped land cover types across the Lake Eucha Basin and used an unsupervised classification technique. Unsupervised classification is a statistical clustering algorithm to analyze the digital values in each band of the imagery and to determine the number of statistically distinct features (clusters) in an image. In this study, we used an unsupervised iterative self-organizing data analysis (ISODATA) clustering algorithm. ISODATA is a widely used clustering algorithm that makes a large number of passes through an image using a minimum spectral distance routine to form clusters. It begins with an arbitrary cluster mean and each time the clustering repeats, the means of these clusters are shifted. The new cluster means are used for the next iteration. This iteration process continues until statistically distinct features emerge.

The methods used to generate the final cover type map across Lake Eucha Basin included a multi-step ISODATA analysis technique. Because of the complex nature of the land use types across the watershed and the spectral similarity between these land use categories, three iterations of ISODATA clustering were required to accurately map land use types.

Each unsupervised classification generated 100 spectral classes with a maximum number of 20 iterations. Spectral convergence threshold was set to 95 percent. The initial unsupervised classification produced 100 classes from the entire 12 June 2001 Landsat 7 image. This unsupervised classification was displayed on top of the Landsat image and DOQ's as a thematic layer. By visual interpretation of the Landsat imagery and DOQ's, a set of spectral classes were identified as containing the majority of the forest cover types across the image. The thematic layer was then recoded such that all identified forest classes were recoded to "0" and all other classes were recoded to "1". This layer was saved as a separate file and used as a mask. The mask was applied to the original Landsat image and all pixels that fell within the forest classes were removed. The output masked image was the original Landsat image with all forest pixels removed. This image was then used as the input for the second unsupervised classification.

The second unsupervised classification generated 100 spectral classes using the same number of iterations and convergence threshold. This classification was used to extract urban areas and water from the Landsat imagery. The classification results were again displayed on the Landsat and DOQ imagery. A set of spectral classes was identified for both water and urban land use categories. Each set of spectral classes was recoded separately and saved as separate files. These files were used as masks to remove urban and water features from the imagery. The output image was the original Landsat image with all forest, water and urban pixels removed. This image was used as the input for the third unsupervised classification.

The third unsupervised classification produced 100 spectral classes. This classification was used to identify and map varying pasture types across the Lake Eucha Basin. The cover type categories included maintained pasture, hayed pasture, over grazed pasture, row crop / bare soil and shrubland. There is tremendous temporal change within and between these cover types. For example, a maintained pasture on one day becomes a hayed pasture the next if the land use manager hays that field. Similarly, a hayed field becomes a row crop field if the land is tilled. Because of this temporal change, the ground truth data could not be relied upon to guide the binning of spectral classes as it was for the identification of temporally stable forests, urban and water. A set of decision criteria was established to guide the labeling of spectral classes into pasture type categories. The decision criteria are as follows:

1. *Maintained Pasture*
  - a. Fields with a high vegetative biomass state.
  - b. These fields will be relatively homogeneous in their spectral response and in their apparent color in the Landsat imagery.
2. *Hayed Field*
  - a. Fields with a lower vegetative biomass state than maintained pasture.
  - b. These fields contain some vegetative spectral response with a significant soil component.
  - c. They are relatively homogeneous in their apparent color in the Landsat imagery.
3. *Over Grazed Pasture*
  - a. Fields with a “mottled” appearance.
  - b. This mottled appearance is due to the selective grazing by cattle or concentration of too many cattle in a field.
  - c. These fields have areas with varying vegetative biomass. There is a large soil component to the spectral signature.
4. *Row Crop / Bare Soil*
  - a. Fields with no vegetative component.
  - b. These fields have recently been tilled or the vegetative component is so small that it is not visually or spectrally apparent.

##### 5. *Shrubland*

- a. Fields with high vegetative component.
- b. These fields contain both woody and herbaceous species.
- c. They tend to border forested areas.

These decision criteria were used as a guide for labeling spectral classes into pasture types. The primary means for labeling these spectral classes was apparent color of the pixels in the Landsat imagery. Each spectral class was analyzed to see what types of fields it was detecting. The decision criteria were then used to label that class to an appropriate pasture type or shrubland. This third unsupervised classification was also used to identify any additional forest, urban or water pixels that may have been missed in the two previous classification runs. Once all the spectral classes were labeled to the appropriate land use category, the image was recoded such that each land use category was given a unique identifier.

The final land use map for the 12 June 2001 Landsat 7 ETM+ image was produced using standard image addition techniques. The forest pixels from the first unsupervised classification, the urban and water pixels from the second unsupervised classification and the pasture types and shrubland from the third unsupervised classification were added together and recoded to unique identifying class numbers. Finally, the classes were color coded and output to a final thematic map.

## Results

With image processing complete, the classified results of the 12 June 2001 Landsat 7 ETM+ image were subset along the boundary of Eucha Basin. This produced the final classified image which encompasses an area of 19,363,968 hectares and is broken into eight landcover classes. Final percentages for landcover in the basin were calculated using this subset portion (Figure 1).

Landcover Type	Hectares	Percentage (%) of Watershed
Roads/Urban	3085.02	1.60
Maintained Pasture	45550.17	23.52
Hayed Pasture	30237.48	15.62
Overgrazed Pasture	15024.87	7.76
Row Crop / Bare Soil	4980.51	2.57
Forest	91468.26	47.24
Shrubland	596.61	0.30
Water	2696.76	1.39
<b>TOTAL</b>	<b>193639.68</b>	<b>100</b>

**Figure 1.** Lake Eucha Landcover Results

Three classes tended to dominate the basin with Forest, at 47.24%, followed by Maintained Pasture, 23.52%, and then Hayed Pasture, at 15.62%. While the other classes exhibited smaller percentages, it must be noted that spatial resolution limitations of the Landsat imagery allowed some of the narrower roads / urban features and water bodies (streams and creeks) to go undetected or be classed with another neighboring landcover type.

## Appendix C

SAMPDATE	LOCATION	SAMPID	DL NO3 mg/L	NITRATE as N mg/L	DL P mg/L	T-PHOS mg/L	DL DP mg/L	D-PHOS mg/L
04/15/1998	Rattlesnake Creek	EUC04-1	0.03		0.005		0.005	
04/28/1998	Rattlesnake Creek	EUC04-1	0.03	0.241	0.005	0.0270	0.005	0.0070
05/14/1998	Rattlesnake Creek	EUC04-1	0.03	0.293	0.005	0.0120	0.005	0.0070
05/26/1998	Rattlesnake Creek	EUC04-1	0.03	0.281	0.005	0.0110	0.005	0.0080
09/22/1998	Rattlesnake Creek	EUC04-1	0.03	0.597	0.005	0.0190	0.005	0.0890
10/15/1998	Rattlesnake Creek	EUC04-1	0.03	1.11	0.005	0.0240	0.005	0.0090
11/19/1998	Rattlesnake Creek	EUC04-1	0.03	0.000	0.005	0.0220	0.005	0.0050
12/10/1998	Rattlesnake Creek	EUC04-1	0.03	0.656	0.005	0.0100	0.005	0.0080
01/13/1999	Rattlesnake Creek	EUC04-1	0.03	0.665	0.005	0.0080	0.005	0.0070
02/18/1999	Rattlesnake Creek	EUC04-1	0.03	0.927	0.005	0.0130	0.005	0.0060
03/09/1999	Rattlesnake Creek	EUC04-1	0.03	0.743	0.005		0.005	0.0090
04/14/1999	Rattlesnake Creek	EUC04-1	0.03		0.005	0.0080	0.005	
04/27/1999	Rattlesnake Creek	EUC04-1	0.03	1.14	0.005	0.0350	0.005	0.0180
05/11/1999	Rattlesnake Creek	EUC04-1	0.03	0.643	0.005	0.0120	0.005	0.0100
05/27/1999	Rattlesnake Creek	EUC04-1	0.03	0.573	0.005	0.0150	0.005	0.0110
06/08/1999	Rattlesnake Creek	EUC04-1	0.03	1.00	0.005	0.0100	0.005	0.0120
06/22/1999	Rattlesnake Creek	EUC04-1	0.03	0.846	0.005	0.0140	0.005	0.0070
07/14/1999	Rattlesnake Creek	EUC04-1	0.03	0.324	0.005	0.0100	0.005	0.0080
09/14/1999	Rattlesnake Creek	EUC04-1	0.03	0.489	0.005	0.0100	0.005	0.0070
12/06/1999	Rattlesnake Creek	EUC04-1	0.026	0.746	0.008	0.0180	0.008	0.0090
03/08/2000	Rattlesnake Creek	EUC04-1	0.026	0.703	0.008	0.0140	0.008	0.0060
04/11/2000	Rattlesnake Creek	EUC04-1	0.026	0.447	0.008	0.0040	0.008	0.0060
04/25/2000	Rattlesnake Creek	EUC04-1	0.026	0.367	0.008	0.0090	0.008	0.0070
05/09/2000	Rattlesnake Creek	EUC04-1	0.026	1.02	0.008	0.0810	0.008	0.0160
05/25/2000	Rattlesnake Creek	EUC04-1	0.026	0.461	0.008	0.0120	0.008	0.0100
06/28/2000	Rattlesnake Creek	EUC04-1	0.026	0.503	0.008	0.0950	0.008	0.0150
02/21/2001	Rattlesnake Creek	EUC04-1	0.02	1.1	0.01	-99999	0.01	-99999
02/21/2001	Rattlesnake Creek	EUC04-1	0.02	1.1	0.01	-99999	0.01	-99999
03/15/2001	Rattlesnake Creek	EUC04-1	0.02	0.74	0.01	0.0110		-99999.000
02/12/2002		EUC04-1	0.025	0.81	0.01	-99999	0.01	-99999
04/15/1998	Brush Creek	EUC05-1	0.03		0.005		0.005	
04/28/1998	Brush Creek	EUC05-1	0.03	0.573	0.005	0.0360	0.005	0.0110
05/14/1998	Brush Creek	EUC05-1	0.03	0.491	0.005	0.0150	0.005	0.0090
05/26/1998	Brush Creek	EUC05-1	0.03	0.452	0.005	0.0150	0.005	0.0080
06/09/1998	Brush Creek	EUC05-1	0.03	0.451	0.005	0.0160	0.005	0.0090
10/15/1998	Brush Creek	EUC05-1	0.03	1.60	0.005	0.0150	0.005	0.0140
10/28/1998	Brush Creek	EUC05-1	0.03	0.799	0.005	0.0090	0.005	0.0070
11/19/1998	Brush Creek	EUC05-1	0.03	0.000	0.005	0.0240	0.005	0.0130
12/10/1998	Brush Creek	EUC05-1	0.03	1.14	0.005	0.0120	0.005	0.0100
01/13/1999	Brush Creek	EUC05-1	0.03	1.17	0.005	0.0090	0.005	0.0090
02/18/1999	Brush Creek	EUC05-1	0.03	1.38	0.005	0.0660	0.005	0.0120
03/09/1999	Brush Creek	EUC05-1	0.03	1.16	0.005		0.005	0.0110
04/14/1999	Brush Creek	EUC05-1	0.03		0.005	0.0070	0.005	
04/27/1999	Brush Creek	EUC05-1	0.03	0.965	0.005	0.141	0.005	0.0660
05/11/1999	Brush Creek	EUC05-1	0.03	1.06	0.005	0.0210	0.005	0.0160
05/27/1999	Brush Creek	EUC05-1	0.03	0.805	0.005	0.0210	0.005	0.0180
06/08/1999	Brush Creek	EUC05-1	0.03	0.652	0.005	0.0120	0.005	0.0130
06/22/1999	Brush Creek	EUC05-1	0.03	0.712	0.005	0.0230	0.005	0.0100
07/14/1999	Brush Creek	EUC05-1	0.03	0.743	0.005	0.0150	0.005	0.0120
07/28/1999	Brush Creek	EUC05-1	0.03	0.621	0.005	0.0110	0.005	0.0080
09/14/1999	Brush Creek	EUC05-1	0.03	0.822	0.005	0.0110	0.005	0.0100
12/06/1999	Brush Creek	EUC05-1	0.026	0.979	0.008	0.0130	0.008	0.0100
01/20/2000	Brush Creek	EUC05-1	0.026	0.962	0.008	0.0180	0.008	0.0050
03/08/2000	Brush Creek	EUC05-1	0.026	1.29	0.008	0.0120	0.008	0.0120

04/11/2000	Brush Creek	EUC05-1	0.026	0.707	0.008	0.0140	0.008	0.0090
04/25/2000	Brush Creek	EUC05-1	0.026	0.663	0.008	0.008	0.0070	
05/09/2000	Brush Creek	EUC05-1	0.026	0.857	0.008	0.0450	0.008	0.0220
05/25/2000	Brush Creek	EUC05-1	0.026	0.750	0.008	0.0170	0.008	0.0130
06/28/2000	Brush Creek	EUC05-1	0.026	0.830	0.008	0.0610	0.008	0.0110
07/12/2000	Brush Creek	EUC05-1	0.026	0.693	0.008	0.0590	0.008	0.0130
01/25/2001	Brush Creek	EUC05-1	0.02	1.4	0.01	-99999	0.01	-99999
02/21/2001	Brush Creek	EUC05-1	0.02	2.0	0.01	0.0110	0.01	0.0100
02/21/2001	Brush Creek	EUC05-1	0.02	2.0	0.01	0.0110	0.01	0.0100
03/15/2001	Brush Creek	EUC05-1	0.02	1.7	0.01	0.0110		0.0100
04/09/2001	Brush Creek	EUC05-1	0.02	1.1	0.01	0.0150	0.01	-99999
05/08/2001	Brush Creek	EUC05-1	0.02	0.787	0.01	0.0160	0.01	-99999
02/12/2002		EUC05-1	0.025	1.3	0.01	-99999	0.01	-99999
10/05/1998	Beaty Creek	EUC06	0.03	1.63	0.005	0.168	0.005	0.328
10/06/1998	Beaty Creek	EUC06	0.03	3.12	0.005	0.209	0.005	0.189
05/09/2000	Beaty Creek	EUC06	0.026	-0.15	0.008	0.0430	0.008	
05/10/2000	Beaty Creek	EUC06	0.026	1.7	0.008	0.0380	0.008	
05/10/2000	Beaty Creek	EUC06	0.026	1.8	0.008	0.0430	0.008	
05/10/2000	Beaty Creek	EUC06	0.026	1.8	0.008	0.0410	0.008	
05/10/2000	Beaty Creek	EUC06	0.026	1.8	0.008	0.0380	0.008	
05/10/2000	Beaty Creek	EUC06	0.026	1.8	0.008	0.0380	0.008	
05/10/2000	Beaty Creek	EUC06	0.026	1.8	0.008	0.0370	0.008	
05/10/2000	Beaty Creek	EUC06	0.026	1.8	0.008	0.0370	0.008	
01/29/2001	Beaty Creek	EUC06	0.02	4.48	0.01	0.46	0.01	
01/29/2001	Beaty Creek	EUC06	0.02	3.39	0.01	0.45	0.01	
01/29/2001	Beaty Creek	EUC06	0.02	3.08	0.01	0.52	0.01	
01/29/2001	Beaty Creek	EUC06	0.02	3.18	0.01	0.55	0.01	
01/29/2001	Beaty Creek	EUC06	0.02	3.26	0.01	0.51	0.01	
01/29/2001	Beaty Creek	EUC06	0.02	3.43	0.01	0.40	0.01	
01/29/2001	Beaty Creek	EUC06	0.02	4.24	0.01	0.34	0.01	
01/30/2001	Beaty Creek	EUC06	0.02	3.50	0.01	0.29	0.01	
02/15/2001	Beaty Creek	EUC06	0.02	4.4	0.01	0.055		
02/15/2001	Beaty Creek	EUC06	0.02	4.4	0.01	0.055		
02/15/2001	Beaty Creek	EUC06	0.02	4.4	0.01	0.060		
02/15/2001	Beaty Creek	EUC06	0.02	4.4	0.01	0.060		
02/15/2001	Beaty Creek	EUC06	0.02	4.4	0.01	0.073		
02/15/2001	Beaty Creek	EUC06	0.02	4.4	0.01	0.073		
02/15/2001	Beaty Creek	EUC06	0.02	4.1	0.01	0.090		
02/15/2001	Beaty Creek	EUC06	0.02	4.1	0.01	0.090		
02/15/2001	Beaty Creek	EUC06	0.02	4.0	0.01	0.098		
02/15/2001	Beaty Creek	EUC06	0.02	4.0	0.01	0.098		
02/15/2001	Beaty Creek	EUC06	0.02	4.0	0.01	0.12		
02/15/2001	Beaty Creek	EUC06	0.02	4.0	0.01	0.12		
02/15/2001	Beaty Creek	EUC06	0.02	3.9	0.01	0.14		
02/15/2001	Beaty Creek	EUC06	0.02	3.9	0.01	0.14		
02/15/2001	Beaty Creek	EUC06	0.02	3.9	0.01	0.16		
02/15/2001	Beaty Creek	EUC06	0.02	3.9	0.01	0.16		
02/24/2001	Beaty Creek	EUC06	0.02	1.7	0.01	0.83		
02/24/2001	Beaty Creek	EUC06	0.02	1.7	0.01	0.83		
02/24/2001	Beaty Creek	EUC06	0.02	1.6	0.01	0.86		
02/24/2001	Beaty Creek	EUC06	0.02	1.6	0.01	0.86		
02/24/2001	Beaty Creek	EUC06	0.02	1.9	0.01	0.38		
02/24/2001	Beaty Creek	EUC06	0.02	1.9	0.01	0.38		
02/24/2001	Beaty Creek	EUC06	0.02	2.7	0.01	0.34		
02/24/2001	Beaty Creek	EUC06	0.02	2.7	0.01	0.34		
02/24/2001	Beaty Creek	EUC06	0.02	0.030	0.01	0.32		

02/24/2001	Beaty Creek	EUC06	0.02	0.030	0.01	0.32		
02/24/2001	Beaty Creek	EUC06	0.02	1.3	0.01	0.38		
05/02/2000	Beaty Creek	EUC06	0.026	1.5	0.008	0.0540	0.008	
05/02/2000	Beaty Creek	EUC06	0.026	1.7	0.008	0.0470	0.008	
05/02/2000	Beaty Creek	EUC06	0.026	1.7	0.008	0.255	0.008	
05/02/2000	Beaty Creek	EUC06	0.026	1.7	0.008	0.0430	0.008	
05/02/2000	Beaty Creek	EUC06	0.026	1.7	0.008	0.0420	0.008	
05/02/2000	Beaty Creek	EUC06	0.026	1.8	0.008	0.0450	0.008	
05/02/2000	Beaty Creek	EUC06	0.026	1.8	0.008	0.0430	0.008	
05/02/2000	Beaty Creek	EUC06	0.026	1.7	0.008	0.0590	0.008	
06/17/2000	Beaty Creek	EUC06	0.026	1.84	0.008	0.381	0.008	
06/17/2000	Beaty Creek	EUC06	0.026	1.22	0.008	0.816	0.008	
06/17/2000	Beaty Creek	EUC06	0.026	1.14	0.008	0.688	0.008	
06/17/2000	Beaty Creek	EUC06	0.026	1.23	0.008	0.583	0.008	
06/17/2000	Beaty Creek	EUC06	0.026	1.37	0.008	0.113	0.008	
06/17/2000	Beaty Creek	EUC06	0.026	1.48	0.008	0.428	0.008	
06/17/2000	Beaty Creek	EUC06	0.026	1.52	0.008	0.316	0.008	
06/21/2000	Beaty Creek	EUC06	0.026	2.4	0.008	0.0780	0.008	
06/21/2000	Beaty Creek	EUC06	0.026	2.4	0.008	0.300	0.008	
06/21/2000	Beaty Creek	EUC06	0.026	2.1	0.008	0.287	0.008	
06/21/2000	Beaty Creek	EUC06	0.026	1.9	0.008	0.317	0.008	
06/21/2000	Beaty Creek	EUC06	0.026	1.9	0.008	0.296	0.008	
06/21/2000	Beaty Creek	EUC06	0.026	1.9	0.008	0.266	0.008	
06/21/2000	Beaty Creek	EUC06	0.026	1.9	0.008	0.285	0.008	
06/22/2000	Beaty Creek	EUC06	0.026	1.9	0.008	0.267	0.008	
06/22/2000	Beaty Creek	EUC06	0.026	2.0	0.008	0.221	0.008	
06/22/2000	Beaty Creek	EUC06	0.026	2.0	0.008	0.189	0.008	
07/29/2000	Beaty Creek	EUC06	0.026	1.9	0.008	0.564	0.008	
07/29/2000	Beaty Creek	EUC06	0.026	2.1	0.008	0.635	0.008	
07/29/2000	Beaty Creek	EUC06	0.026	1.8	0.008	0.691	0.008	
07/29/2000	Beaty Creek	EUC06	0.026	1.8	0.008	0.532	0.008	
07/29/2000	Beaty Creek	EUC06	0.026	1.9	0.008	0.478	0.008	
07/29/2000	Beaty Creek	EUC06	0.026	2.0	0.008	0.415	0.008	
07/29/2000	Beaty Creek	EUC06	0.026	2.1	0.008	0.335	0.008	
07/29/2000	Beaty Creek	EUC06	0.026	2.2	0.008	0.297	0.008	
04/15/1998	Beaty Creek	EUC06-1	0.03		0.005		0.005	
04/28/1998	Beaty Creek	EUC06-1	0.03	2.21	0.005	0.0450	0.005	0.0330
05/14/1998	Beaty Creek	EUC06-1	0.03	1.80	0.005	0.0420	0.005	0.0380
05/26/1998	Beaty Creek	EUC06-1	0.03	1.72	0.005	0.0520	0.005	0.0450
06/09/1998	Beaty Creek	EUC06-1	0.03	1.64	0.005	0.0610	0.005	0.0460
06/24/1998	Beaty Creek	EUC06-1	0.03	1.37	0.005	0.0450	0.005	
07/16/1998	Beaty Creek	EUC06-1	0.03	1.10	0.005	0.0430	0.005	0.0410
07/29/1998	Beaty Creek	EUC06-1	0.03	0.970	0.005	0.0510	0.005	0.0440
08/11/1998	Beaty Creek	EUC06-1	0.03	0.930	0.005	0.0470	0.005	0.0420
08/27/1998	Beaty Creek	EUC06-1	0.03	0.684	0.005		0.005	0.0420
09/10/1998	Beaty Creek	EUC06-1	0.03	0.596	0.005	0.0530	0.005	0.0360
09/14/1998	Beaty Creek	EUC06-1	0.03	1.2	0.005	0.0640	0.005	0.0430
09/14/1998	Beaty Creek	EUC06-1	0.03	1.4	0.005	0.0870	0.005	0.0470
09/14/1998	Beaty Creek	EUC06-1	0.03	1.6	0.005	0.0590	0.005	0.0490
09/15/1998	Beaty Creek	EUC06-1	0.03	1.6	0.005	0.0480	0.005	0.0400
09/22/1998	Beaty Creek	EUC06-1	0.03	1.04	0.005	0.0470	0.005	0.0370
10/15/1998	Beaty Creek	EUC06-1	0.03	3.36	0.005	0.0650	0.005	0.0520
10/28/1998	Beaty Creek	EUC06-1	0.03	2.27	0.005	0.0450	0.005	0.0400
11/19/1998	Beaty Creek	EUC06-1	0.03	3.14	0.005	0.0430	0.005	0.0370
12/10/1998	Beaty Creek	EUC06-1	0.03	3.05	0.005	0.137	0.005	0.0390
01/13/1999	Beaty Creek	EUC06-1	0.03	3.42	0.005	0.0330	0.005	0.0340

02/18/1999	Beaty Creek	EUC06-1	0.03	3.93	0.005	0.0520	0.005	0.0450
03/09/1999	Beaty Creek	EUC06-1	0.03	3.18	0.005		0.005	0.0430
03/12/1999	Beaty Creek	EUC06-1	0.03	2.56	0.005	0.0960	0.005	
03/13/1999	Beaty Creek	EUC06-1	0.03	2.02	0.005	0.230	0.005	
03/15/1999	Beaty Creek	EUC06-1	0.03	2.74	0.005	0.157	0.005	
04/14/1999	Beaty Creek	EUC06-1	0.03		0.005	0.0290	0.005	
04/27/1999	Beaty Creek	EUC06-1	0.03	1.62	0.005	0.202	0.005	0.133
05/11/1999	Beaty Creek	EUC06-1	0.03	3.07	0.005	0.0650	0.005	0.0650
05/27/1999	Beaty Creek	EUC06-1	0.03	2.64	0.005	0.0610	0.005	0.0560
06/08/1999	Beaty Creek	EUC06-1	0.03	2.37	0.005	0.0480	0.005	0.0480
06/22/1999	Beaty Creek	EUC06-1	0.03	2.05	0.005	0.0780	0.005	0.0550
07/14/1999	Beaty Creek	EUC06-1	0.03	3.08	0.005	0.0480	0.005	0.0470
07/28/1999	Beaty Creek	EUC06-1	0.03	2.62	0.005	0.0460	0.005	0.0450
08/12/1999	Beaty Creek	EUC06-1	0.03	2.59	0.005	0.0670	0.005	0.0310
08/25/1999	Beaty Creek	EUC06-1	0.03	2.23	0.005	0.0600	0.005	0.0510
09/14/1999	Beaty Creek	EUC06-1	0.03	2.51	0.005	0.0460	0.005	0.0460
09/28/1999	Beaty Creek	EUC06-1	0.03	2.02	0.005	0.0480	0.005	0.0460
10/14/1999	Beaty Creek	EUC06-1	0.03	2.02	0.005	0.0190	0.005	0.0030
11/02/1999	Beaty Creek	EUC06-1	0.026	1.89	0.008	0.0400	0.008	0.0410
12/06/1999	Beaty Creek	EUC06-1	0.026	2.91	0.008	0.0580	0.008	0.0470
01/20/2000	Beaty Creek	EUC06-1	0.026	2.44	0.008	0.0180	0.008	0.0050
02/10/2000	Beaty Creek	EUC06-1	0.026	2.12	0.008	0.0280	0.008	0.0290
03/08/2000	Beaty Creek	EUC06-1	0.026	2.40	0.008	0.0310	0.008	0.0320
04/11/2000	Beaty Creek	EUC06-1	0.026	1.82	0.008	0.0350	0.008	0.0350
04/25/2000	Beaty Creek	EUC06-1	0.026	1.64	0.008		0.008	0.0330
05/09/2000	Beaty Creek	EUC06-1	0.026	1.64	0.008	0.0370	0.008	0.0320
05/25/2000	Beaty Creek	EUC06-1	0.026	1.71	0.008	0.0420	0.008	0.0370
06/14/2000	Beaty Creek	EUC06-1	0.026	1.71	0.008	0.0430	0.008	0.0410
06/28/2000	Beaty Creek	EUC06-1	0.026	2.64	0.008	0.101	0.008	0.0620
07/12/2000	Beaty Creek	EUC06-1	0.026	2.76	0.008	0.0630	0.008	0.0570
07/26/2000	Beaty Creek	EUC06-1	0.026	2.45	0.008	0.0500	0.008	0.0450
08/09/2000	Beaty Creek	EUC06-1	0.026	2.46	0.008	0.0710	0.008	0.0640
08/23/2000	Beaty Creek	EUC06-1	0.026	2.24	0.008	0.0560	0.008	0.0500
09/12/2000	Beaty Creek	EUC06-1	0.026	2.01	0.008	0.0570	0.008	0.0560
09/27/2000	Beaty Creek	EUC06-1	0.026	1.93	0.008	0.0510	0.008	0.0480
10/19/2000	Beaty Creek	EUC06-1	0.026	1.74	0.008	0.0480	0.008	0.0440
10/19/2000	Beaty Creek	EUC06-1	0.026	1.74	0.008	0.0480	0.008	0.0440
11/13/2000	Beaty Creek	EUC06-1	0.026	1.9	0.008	0.0410	0.008	0.0420
12/12/2000	Beaty Creek	EUC06-1	0.026	2.49	0.008	0.0380	0.008	0.0350
01/25/2001	Beaty Creek	EUC06-1	0.02	3.4	0.01	0.0240	0.01	0.0270
02/21/2001	Beaty Creek	EUC06-1	0.02	4.7	0.01	0.0470	0.01	0.0470
02/21/2001	Beaty Creek	EUC06-1	0.02	4.7	0.01	0.0470	0.01	0.0470
03/15/2001	Beaty Creek	EUC06-1	0.02	4.3	0.01	0.0480		0.0460
04/09/2001	Beaty Creek	EUC06-1	0.02	3.1	0.01	0.0370	0.01	0.0340
05/08/2001	Beaty Creek	EUC06-1	0.02	2.51	0.01	0.0400	0.01	0.0400
06/21/2001	Beaty Creek	EUC06-1	0.02	1.8	0.01	0.0350	0.01	0.0420
07/12/2001	Beaty Creek	EUC06-1	0.02	1.6	0.01	0.0400	0.01	0.0420
08/16/2001	Beaty Creek	EUC06-1	0.02	1.2	0.01	0.042	0.01	0.04
09/13/2001	Beaty Creek	EUC06-1	0.02	0.99	0.01	0.0420	0.01	0.0340
10/18/2001	Beaty Creek	EUC06-1	0.02	2.2	0.01	0.0420	0.01	0.0370
11/15/2001	Beaty Creek	EUC06-1	0.02	1.9	0.01	0.036	0.01	0.048
12/12/2001	Beaty Creek	EUC06-1	0.02	1.6	0.01	0.0370	0.01	0.0310
01/15/2002	Beaty Creek	EUC06-1	0.02	3.2	0.01	0.0430	0.01	0.0330
02/12/2002		EUC06-1	0.025	3.2	0.01	0.0330	0.01	0.0310
06/30/1999	Beaty Creek	EUC06-1615	0.03	1.70	0.005	0.663	0.005	0.0020
04/15/1998	Beaty Creek	EUC06-2	0.03		0.005		0.005	

04/28/1998	Beaty Creek	EUC06-2	0.03	2.15	0.005	0.0660	0.005	0.0350
05/14/1998	Beaty Creek	EUC06-2	0.03	1.79	0.005	0.0420	0.005	0.0380
05/26/1998	Beaty Creek	EUC06-2	0.03	1.68	0.005	0.0540	0.005	0.0430
06/09/1998	Beaty Creek	EUC06-2	0.03	1.61	0.005	0.0560	0.005	0.0470
06/24/1998	Beaty Creek	EUC06-2	0.03	1.44	0.005	0.0480	0.005	
07/16/1998	Beaty Creek	EUC06-2	0.03	1.20	0.005	0.0460	0.005	0.0410
07/29/1998	Beaty Creek	EUC06-2	0.03	0.936	0.005	0.0500	0.005	0.0440
08/11/1998	Beaty Creek	EUC06-2	0.03	0.887	0.005	0.0440	0.005	0.0420
08/27/1998	Beaty Creek	EUC06-2	0.03	0.682	0.005		0.005	0.0430
09/10/1998	Beaty Creek	EUC06-2	0.03	0.621	0.005	0.0570	0.005	0.0320
09/22/1998	Beaty Creek	EUC06-2	0.03	1.06	0.005	0.0440	0.005	0.0370
10/15/1998	Beaty Creek	EUC06-2	0.03	3.56	0.005	0.0660	0.005	0.0520
10/28/1998	Beaty Creek	EUC06-2	0.03	2.19	0.005	0.0440	0.005	0.0370
11/19/1998	Beaty Creek	EUC06-2	0.03	3.11	0.005	0.0390	0.005	0.0380
12/10/1998	Beaty Creek	EUC06-2	0.03	3.05	0.005	0.135	0.005	0.0330
01/13/1999	Beaty Creek	EUC06-2	0.03	3.28	0.005	0.0300	0.005	0.0340
02/18/1999	Beaty Creek	EUC06-2	0.03	3.91	0.005	0.0550	0.005	0.0460
03/09/1999	Beaty Creek	EUC06-2	0.03	3.17	0.005		0.005	0.0440
03/13/1999	Beaty Creek	EUC06-2	0.03	2.39	0.005	0.179	0.005	
04/14/1999	Beaty Creek	EUC06-2	0.03		0.005	0.0340	0.005	
04/27/1999	Beaty Creek	EUC06-2	0.03	1.65	0.005	0.200	0.005	0.130
05/11/1999	Beaty Creek	EUC06-2	0.03	3.13	0.005	0.0660	0.005	0.0650
05/27/1999	Beaty Creek	EUC06-2	0.03	2.65	0.005	0.0650	0.005	0.0580
06/08/1999	Beaty Creek	EUC06-2	0.03	2.41	0.005	0.0520	0.005	0.0470
06/22/1999	Beaty Creek	EUC06-2	0.03	2.03	0.005	0.0770	0.005	0.0570
07/14/1999	Beaty Creek	EUC06-2	0.03	3.08	0.005	0.0490	0.005	0.0480
07/28/1999	Beaty Creek	EUC06-2	0.03	2.63	0.005	0.0460	0.005	0.0440
08/12/1999	Beaty Creek	EUC06-2	0.03	2.62	0.005	0.0670	0.005	0.0300
08/25/1999	Beaty Creek	EUC06-2	0.03	2.20	0.005	0.0550	0.005	0.0520
09/14/1999	Beaty Creek	EUC06-2	0.03	2.49	0.005	0.0460	0.005	0.0460
09/28/1999	Beaty Creek	EUC06-2	0.03	2.10	0.005	0.0480	0.005	0.0460
10/14/1999	Beaty Creek	EUC06-2	0.03	2.05	0.005	0.0190	0.005	0.0040
11/02/1999	Beaty Creek	EUC06-2	0.026	1.84	0.008	0.0410	0.008	0.0410
12/06/1999	Beaty Creek	EUC06-2	0.026	2.88	0.008	0.0570	0.008	0.0550
01/20/2000	Beaty Creek	EUC06-2	0.026	2.47	0.008	0.0170	0.008	0.0060
02/10/2000	Beaty Creek	EUC06-2	0.026	2.12	0.008	0.0260	0.008	0.0290
03/08/2000	Beaty Creek	EUC06-2	0.026	2.40	0.008	0.0320	0.008	0.0330
04/11/2000	Beaty Creek	EUC06-2	0.026	1.80	0.008	0.0340	0.008	0.0320
04/25/2000	Beaty Creek	EUC06-2	0.026	1.65	0.008		0.008	0.0330
05/09/2000	Beaty Creek	EUC06-2	0.026	1.56	0.008	0.0380	0.008	0.0320
05/25/2000	Beaty Creek	EUC06-2	0.026	1.65	0.008	0.0410	0.008	0.0370
06/14/2000	Beaty Creek	EUC06-2	0.026	1.73	0.008	0.0420	0.008	0.0410
06/28/2000	Beaty Creek	EUC06-2	0.026	2.60	0.008	0.0990	0.008	0.0610
07/12/2000	Beaty Creek	EUC06-2	0.026	0.562	0.008	0.0650	0.008	0.0570
07/26/2000	Beaty Creek	EUC06-2	0.026	2.43	0.008	0.0500	0.008	0.0470
08/09/2000	Beaty Creek	EUC06-2	0.026	2.46	0.008	0.0670	0.008	0.0640
08/23/2000	Beaty Creek	EUC06-2	0.026	2.23	0.008	0.0570	0.008	0.0540
09/12/2000	Beaty Creek	EUC06-2	0.026	2.04	0.008	0.0570	0.008	0.0570
09/27/2000	Beaty Creek	EUC06-2	0.026	1.89	0.008	0.0510	0.008	0.0490
10/19/2000	Beaty Creek	EUC06-2	0.026	1.79	0.008	0.0470	0.008	0.0450
10/19/2000	Beaty Creek	EUC06-2	0.026	1.79	0.008	0.0470	0.008	0.0450
11/13/2000	Beaty Creek	EUC06-2	0.026	1.8	0.008	0.0410	0.008	0.0420
12/12/2000	Beaty Creek	EUC06-2	0.026	2.49	0.008	0.0380	0.008	0.0370
01/25/2001	Beaty Creek	EUC06-2	0.02	3.4	0.01	0.0250	0.01	0.0270
02/21/2001	Beaty Creek	EUC06-2	0.02	4.7	0.01	0.0460	0.01	0.0470
02/21/2001	Beaty Creek	EUC06-2	0.02	4.7	0.01	0.0460	0.01	0.0470

03/15/2001	Beaty Creek	EUC06-2	0.02	4.5	0.01	0.0470		0.0460
04/09/2001	Beaty Creek	EUC06-2	0.02	3.1	0.01	0.0370	0.01	0.0330
05/08/2001	Beaty Creek	EUC06-2	0.02	2.55	0.01	0.0380	0.01	0.0400
06/21/2001	Beaty Creek	EUC06-2	0.02	1.9	0.01	0.0360	0.01	0.0420
07/12/2001	Beaty Creek	EUC06-2	0.02	1.6	0.01	0.0450	0.01	0.0420
08/16/2001	Beaty Creek	EUC06-2	0.02	1.2	0.01	0.041	0.01	0.042
09/13/2001	Beaty Creek	EUC06-2	0.02	1.0	0.01	0.0440	0.01	0.0350
10/18/2001	Beaty Creek	EUC06-2	0.02	2.1	0.01	0.0520	0.01	0.0380
11/15/2001	Beaty Creek	EUC06-2	0.02	1.8	0.01	0.038	0.01	0.051
12/12/2001	Beaty Creek	EUC06-2	0.02	1.7	0.01	0.0380	0.01	0.0300
01/15/2002	Beaty Creek	EUC06-2	0.02	3.2	0.01	0.0420	0.01	0.0290
02/12/2002		EUC06-2	0.025	3.2	0.01	0.0320	0.01	0.0310
04/15/1998	Dry Creek	EUC07-1	0.03		0.005		0.005	
04/28/1998	Dry Creek	EUC07-1	0.03	0.525	0.005	0.0240	0.005	0.0090
05/14/1998	Dry Creek	EUC07-1	0.03	0.452	0.005	0.0120	0.005	0.0070
05/26/1998	Dry Creek	EUC07-1	0.03	0.485	0.005	0.0180	0.005	0.0080
06/09/1998	Dry Creek	EUC07-1	0.03	0.426	0.005	0.0130	0.005	0.0070
06/24/1998	Dry Creek	EUC07-1	0.03	0.446	0.005	0.0130	0.005	
07/16/1998	Dry Creek	EUC07-1	0.03	0.431	0.005	0.0100	0.005	0.0040
09/22/1998	Dry Creek	EUC07-1	0.03	0.599	0.005	0.0790	0.005	0.0100
10/15/1998	Dry Creek	EUC07-1	0.03	1.13	0.005	0.0130	0.005	0.0120
10/28/1998	Dry Creek	EUC07-1	0.03	0.749	0.005	0.0110	0.005	0.0100
11/19/1998	Dry Creek	EUC07-1	0.03	0.932	0.005	0.0120	0.005	0.0090
12/10/1998	Dry Creek	EUC07-1	0.03	0.863	0.005	0.107	0.005	0.0080
01/13/1999	Dry Creek	EUC07-1	0.03	0.878	0.005	0.0080	0.005	0.0080
02/18/1999	Dry Creek	EUC07-1	0.03	0.975	0.005	0.0240	0.005	0.0090
03/09/1999	Dry Creek	EUC07-1	0.03	0.856	0.005		0.005	0.0090
04/14/1999	Dry Creek	EUC07-1	0.03		0.005	0.0050	0.005	
04/27/1999	Dry Creek	EUC07-1	0.03	0.574	0.005	0.0450	0.005	0.0160
05/11/1999	Dry Creek	EUC07-1	0.03	0.604	0.005	0.0090	0.005	0.0100
05/27/1999	Dry Creek	EUC07-1	0.03	0.533	0.005	0.0140	0.005	0.0120
06/08/1999	Dry Creek	EUC07-1	0.03	0.442	0.005	0.0070	0.005	0.0090
06/22/1999	Dry Creek	EUC07-1	0.03	0.531	0.005	0.0120	0.005	0.0060
07/14/1999	Dry Creek	EUC07-1	0.03	0.522	0.005	0.0090	0.005	0.0090
07/28/1999	Dry Creek	EUC07-1	0.03	0.574	0.005	0.0100	0.005	0.0060
08/12/1999	Dry Creek	EUC07-1	0.03	0.606	0.005	0.0210	0.005	0.0120
09/14/1999	Dry Creek	EUC07-1	0.03	0.630	0.005	0.0080	0.005	0.0550
09/28/1999	Dry Creek	EUC07-1	0.03	0.592	0.005	0.0100	0.005	0.0080
12/06/1999	Dry Creek	EUC07-1	0.026	0.726	0.008	0.0070	0.008	0.0080
01/20/2000	Dry Creek	EUC07-1	0.026	0.829	0.008	0.0180	0.008	0.0050
02/10/2000	Dry Creek	EUC07-1	0.026	0.776	0.008	0.0060	0.008	0.0060
03/08/2000	Dry Creek	EUC07-1	0.026	1.01	0.008	0.0110	0.008	0.0080
04/11/2000	Dry Creek	EUC07-1	0.026	0.654	0.008	0.0050	0.008	0.0060
04/25/2000	Dry Creek	EUC07-1	0.026	0.526	0.008		0.008	0.0060
05/09/2000	Dry Creek	EUC07-1	0.026	0.746	0.008	0.0160	0.008	0.0100
05/25/2000	Dry Creek	EUC07-1	0.026	0.520	0.008	0.0130	0.008	0.0120
06/14/2000	Dry Creek	EUC07-1	0.026	0.441	0.008	0.0090	0.008	0.0110
06/28/2000	Dry Creek	EUC07-1	0.026	0.564	0.008	0.0470	0.008	0.0100
07/12/2000	Dry Creek	EUC07-1	0.026	0.562	0.008	0.0160	0.008	0.0140
07/26/2000	Dry Creek	EUC07-1	0.026	0.644	0.008	0.0060	0.008	0.0080
08/09/2000	Dry Creek	EUC07-1	0.026	0.603	0.008	0.0130	0.008	0.0150
11/13/2000	Dry Creek	EUC07-1	0.026	0.65	0.008	0.0120	0.008	0.00800
01/25/2001	Dry Creek	EUC07-1	0.02	0.98	0.01	-99999	0.01	-99999
02/21/2001	Dry Creek	EUC07-1	0.02	1.4	0.01	-99999	0.01	-99999
02/21/2001	Dry Creek	EUC07-1	0.02	1.4	0.01	-99999	0.01	-99999
03/15/2001	Dry Creek	EUC07-1	0.02	1.3	0.01	0.0110		-99999.000

04/09/2001	Dry Creek	EUC07-1	0.02	0.94	0.01	0.0120	0.01	-99999
05/08/2001	Dry Creek	EUC07-1	0.02	0.736	0.01	-99999	0.01	-99999
06/21/2001	Dry Creek	EUC07-1	0.02	0.61	0.01	-9999	0.01	-9999
10/18/2001	Dry Creek	EUC07-1	0.02	0.64		0.0220	0.01	0.0140
02/12/2002		EUC07-1	0.025	0.88	0.01	-99999	0.01	-99999
01/29/2001	Spavinaw Lower Creek	EUC08	0.02	0.857	0.01	0.15	0.01	
01/29/2001	Spavinaw Lower Creek	EUC08	0.02	0.829	0.01	0.096	0.01	
01/29/2001	Spavinaw Lower Creek	EUC08	0.02	1.10	0.01	0.097	0.01	
01/29/2001	Spavinaw Lower Creek	EUC08	0.02	1.98	0.01	0.12	0.01	
01/29/2001	Spavinaw Lower Creek	EUC08	0.02	2.69	0.01	0.11	0.01	
01/29/2001	Spavinaw Lower Creek	EUC08	0.02	3.05	0.01	0.083	0.01	
01/29/2001	Spavinaw Lower Creek	EUC08	0.02	3.37	0.01	0.088	0.01	
01/30/2001	Spavinaw Lower Creek	EUC08	0.02	3.57	0.01	0.085	0.01	
02/15/2001	Spavinaw Lower Creek	EUC08	0.02	3.7	0.01	0.21		
02/15/2001	Spavinaw Lower Creek	EUC08	0.02	3.7	0.01	0.21		
02/15/2001	Spavinaw Lower Creek	EUC08	0.02	3.7	0.01	0.22		
02/15/2001	Spavinaw Lower Creek	EUC08	0.02	3.7	0.01	0.22		
02/15/2001	Spavinaw Lower Creek	EUC08	0.02	4.1	0.01	0.10		
02/15/2001	Spavinaw Lower Creek	EUC08	0.02	4.1	0.01	0.10		
02/15/2001	Spavinaw Lower Creek	EUC08	0.02	4.3	0.01	0.093		
02/15/2001	Spavinaw Lower Creek	EUC08	0.02	4.3	0.01	0.093		
02/24/2001	Spavinaw Lower Creek	EUC08	0.02	1.3	0.01	0.38		
02/24/2001	Spavinaw Lower Creek	EUC08	0.02	1.6	0.01	0.37		
02/24/2001	Spavinaw Lower Creek	EUC08	0.02	1.6	0.01	0.37		
02/24/2001	Spavinaw Lower Creek	EUC08	0.02	2.6	0.01	0.57		
02/24/2001	Spavinaw Lower Creek	EUC08	0.02	2.6	0.01	0.57		
02/24/2001	Spavinaw Lower Creek	EUC08	0.02	2.4	0.01	0.44		
02/24/2001	Spavinaw Lower Creek	EUC08	0.02	2.4	0.01	0.44		
02/24/2001	Spavinaw Lower Creek	EUC08	0.02	2.5	0.01	0.44		
02/24/2001	Spavinaw Lower Creek	EUC08	0.02	2.5	0.01	0.44		
05/02/2000	Spavinaw Lower Creek	EUC08	0.026	2.5	0.008	0.0410	0.008	
06/17/2000	Spavinaw Lower Creek	EUC08	0.026	1.45	0.008	0.947	0.008	
06/17/2000	Spavinaw Lower Creek	EUC08	0.026	1.66	0.008	0.699	0.008	
06/17/2000	Spavinaw Lower Creek	EUC08	0.026	2.03	0.008	0.977	0.008	
06/17/2000	Spavinaw Lower Creek	EUC08	0.026	2.25	0.008	1.20	0.008	
06/17/2000	Spavinaw Lower Creek	EUC08	0.026	2.21	0.008	0.923	0.008	
06/17/2000	Spavinaw Lower Creek	EUC08	0.026	2.53	0.008	0.813	0.008	
06/17/2000	Spavinaw Lower Creek	EUC08	0.026	2.62	0.008	0.750	0.008	
06/21/2000	Spavinaw Lower Creek	EUC08	0.026	2.1	0.008	0.839	0.008	
06/21/2000	Spavinaw Lower Creek	EUC08	0.026	2.0	0.008	1.26	0.008	
06/21/2000	Spavinaw Lower Creek	EUC08	0.026	1.6	0.008	2.14	0.008	
06/21/2000	Spavinaw Lower Creek	EUC08	0.026	1.7	0.008	2.75	0.008	
06/21/2000	Spavinaw Lower Creek	EUC08	0.026	2.3	0.008		0.008	
06/22/2000	Spavinaw Lower Creek	EUC08	0.026	2.6	0.008		0.008	
04/15/1998	Spavinaw Lower Creek	EUC08-1	0.03	3.43	0.005	0.0380	0.005	0.0430
04/28/1998	Spavinaw Lower Creek	EUC08-1	0.03	3.15	0.005	0.0600	0.005	0.0430
05/14/1998	Spavinaw Lower Creek	EUC08-1	0.03	2.60	0.005	0.0440	0.005	0.0400
05/26/1998	Spavinaw Lower Creek	EUC08-1	0.03	2.56	0.005	0.0620	0.005	0.0460
06/09/1998	Spavinaw Lower Creek	EUC08-1	0.03	2.66	0.005	0.0550	0.005	0.0490
06/24/1998	Spavinaw Lower Creek	EUC08-1	0.03	2.48	0.005	0.0440	0.005	
07/16/1998	Spavinaw Lower Creek	EUC08-1	0.03	2.33	0.005	0.0430	0.005	0.0340
07/29/1998	Spavinaw Lower Creek	EUC08-1	0.03	2.12	0.005	0.0500	0.005	0.0350
08/11/1998	Spavinaw Lower Creek	EUC08-1	0.03	2.15	0.005	0.0390	0.005	0.0330
08/27/1998	Spavinaw Lower Creek	EUC08-1	0.03	1.85	0.005	0.0610	0.005	0.0330
09/10/1998	Spavinaw Lower Creek	EUC08-1	0.03	1.80	0.005	0.0360	0.005	0.0290
09/14/1998	Spavinaw Lower Creek	EUC08-1	0.03	1.5	0.005	0.0430	0.005	0.0320

09/14/1998	Spavinaw Lower Creek	EUC08-1	0.03	1.7	0.005	0.0940	0.005	0.0290
09/14/1998	Spavinaw Lower Creek	EUC08-1	0.03	1.8	0.005	0.0430	0.005	0.0320
09/15/1998	Spavinaw Lower Creek	EUC08-1	0.03	1.9	0.005	0.0420	0.005	0.0330
09/22/1998	Spavinaw Lower Creek	EUC08-1	0.03	1.69	0.005	0.0360	0.005	0.0320
10/15/1998	Spavinaw Lower Creek	EUC08-1	0.03	3.64	0.005	0.0520	0.005	0.0460
10/28/1998	Spavinaw Lower Creek	EUC08-1	0.03	3.55	0.005	0.0370	0.005	0.0350
11/19/1998	Spavinaw Lower Creek	EUC08-1	0.03	3.79	0.005	0.0440	0.005	0.0410
12/10/1998	Spavinaw Lower Creek	EUC08-1	0.03	3.78	0.005	0.201	0.005	0.0440
01/13/1999	Spavinaw Lower Creek	EUC08-1	0.03		0.005	0.0450	0.005	0.0440
02/18/1999	Spavinaw Lower Creek	EUC08-1	0.03	4.66	0.005	0.0560	0.005	0.0570
03/09/1999	Spavinaw Lower Creek	EUC08-1	0.03	4.60	0.005	0.133	0.005	0.0440
03/13/1999	Spavinaw Lower Creek	EUC08-1	0.03	3.33	0.005	0.239	0.005	
04/14/1999	Spavinaw Lower Creek	EUC08-1	0.03	3.97	0.005	0.0430	0.005	0.0360
04/27/1999	Spavinaw Lower Creek	EUC08-1	0.03	2.53	0.005	0.174	0.005	0.0940
05/11/1999	Spavinaw Lower Creek	EUC08-1	0.03	3.89	0.005	0.0790	0.005	0.0730
05/27/1999	Spavinaw Lower Creek	EUC08-1	0.03	3.48	0.005	0.0730	0.005	0.0710
06/08/1999	Spavinaw Lower Creek	EUC08-1	0.03	3.15	0.005	0.0480	0.005	0.0460
06/22/1999	Spavinaw Lower Creek	EUC08-1	0.03	3.56	0.005	0.0780	0.005	0.0680
07/14/1999	Spavinaw Lower Creek	EUC08-1	0.03		0.005	0.0530	0.005	0.0490
07/28/1999	Spavinaw Lower Creek	EUC08-1	0.03	3.29	0.005	0.0390	0.005	0.0370
08/12/1999	Spavinaw Lower Creek	EUC08-1	0.03	3.45	0.005	0.0660	0.005	0.0310
08/25/1999	Spavinaw Lower Creek	EUC08-1	0.03	3.17	0.005	0.0480	0.005	0.0430
09/14/1999	Spavinaw Lower Creek	EUC08-1	0.03	3.23	0.005	0.0390	0.005	0.0390
09/28/1999	Spavinaw Lower Creek	EUC08-1	0.03	2.96	0.005	0.0430	0.005	0.0380
10/14/1999	Spavinaw Lower Creek	EUC08-1	0.03	3.15	0.005	0.0200	0.005	0.0040
11/02/1999	Spavinaw Lower Creek	EUC08-1	0.026	3.28	0.008	0.0370	0.008	0.0370
12/06/1999	Spavinaw Lower Creek	EUC08-1	0.026	3.16	0.008	0.0450	0.008	0.0410
01/20/2000	Spavinaw Lower Creek	EUC08-1	0.026	3.55	0.008	0.0180	0.008	0.0050
02/10/2000	Spavinaw Lower Creek	EUC08-1	0.026	3.56	0.008	0.0290	0.008	0.0290
03/08/2000	Spavinaw Lower Creek	EUC08-1	0.026	2.99	0.008	0.0500	0.008	0.0410
04/11/2000	Spavinaw Lower Creek	EUC08-1	0.026	2.76	0.008	0.0360	0.008	0.0340
04/25/2000	Spavinaw Lower Creek	EUC08-1	0.026	2.75	0.008		0.008	0.0340
05/09/2000	Spavinaw Lower Creek	EUC08-1	0.026	2.34	0.008	0.0610	0.008	0.0500
05/25/2000	Spavinaw Lower Creek	EUC08-1	0.026	2.35	0.008	0	0.008	0.0550
06/14/2000	Spavinaw Lower Creek	EUC08-1	0.026	2.44	0.008	0.0460	0.008	0.0430
06/28/2000	Spavinaw Lower Creek	EUC08-1	0.026	3.35	0.008	0.102	0.008	0.0780
07/12/2000	Spavinaw Lower Creek	EUC08-1	0.026	3.24	0.008	0.0520	0.008	0.0530
07/26/2000	Spavinaw Lower Creek	EUC08-1	0.026	2.80	0.008	0.0400	0.008	0.0410
08/09/2000	Spavinaw Lower Creek	EUC08-1	0.026	2.98	0.008	0.0600	0.008	0.0490
08/23/2000	Spavinaw Lower Creek	EUC08-1	0.026	2.86	0.008	0.0420	0.008	0.0440
09/12/2000	Spavinaw Lower Creek	EUC08-1	0.026	2.77	0.008	0.0420	0.008	0.0370
09/27/2000	Spavinaw Lower Creek	EUC08-1	0.026	3.29	0.008	0.0500	0.008	0.0480
10/19/2000	Spavinaw Lower Creek	EUC08-1	0.026	2.87	0.008	0.0380	0.008	0.0350
11/13/2000	Spavinaw Lower Creek	EUC08-1	0.026	3.4	0.008	0.0520	0.008	0.0540
12/12/2000	Spavinaw Lower Creek	EUC08-1	0.026	3.73	0.008	0.0420	0.008	0.0400
01/25/2001	Spavinaw Lower Creek	EUC08-1	0.02	4.1	0.01	0.0300	0.01	0.0340
02/21/2001	Spavinaw Lower Creek	EUC08-1	0.02	5.3	0.01	0.0610	0.01	0.0590
02/21/2001	Spavinaw Lower Creek	EUC08-1	0.02	5.3	0.01	0.0610	0.01	0.0590
03/15/2001	Spavinaw Lower Creek	EUC08-1	0.02	5.1	0.01	0.0530		0.0540
04/09/2001	Spavinaw Lower Creek	EUC08-1	0.02	4.1	0.01	0.0370	0.01	0.0340
05/08/2001	Spavinaw Lower Creek	EUC08-1	0.02	3.68	0.01	0.0370	0.01	0.0350
06/21/2001	Spavinaw Lower Creek	EUC08-1	0.02	3.0	0.01	0.0340	0.01	0.0420
07/12/2001	Spavinaw Lower Creek	EUC08-1	0.02	2.7	0.01	0.0680	0.01	0.0300
08/16/2001	Spavinaw Lower Creek	EUC08-1	0.02	2.4	0.01	0.028	0.01	0.033
09/13/2001	Spavinaw Lower Creek	EUC08-1	0.02	2.1	0.01	0.0310	0.01	0.0290
10/18/2001	Spavinaw Lower Creek	EUC08-1	0.02	2.9	0.01	0.0500	0.01	0.0370

11/15/2001	Spavinaw Lower Creek	EUC08-1	0.02	1.9	0.01	0.034	0.01	0.044
12/12/2001	Spavinaw Lower Creek	EUC08-1	0.02	3.3	0.01	0.0390	0.01	0.0310
01/15/2002	Spavinaw Lower Creek	EUC08-1	0.02	4.6	0.01	0.0390	0.01	0.0340
02/12/2002		EUC08-1	0.025	4.3	0.01	0.0490	0.01	0.0480
04/15/1998	Spavinaw Lower Creek	EUC08-2	0.03	3.44	0.005	0.0410	0.005	0.0400
04/28/1998	Spavinaw Lower Creek	EUC08-2	0.03	3.11	0.005	0.0730	0.005	0.0450
05/14/1998	Spavinaw Lower Creek	EUC08-2	0.03	2.54	0.005	0.0440	0.005	0.0390
05/26/1998	Spavinaw Lower Creek	EUC08-2	0.03	2.58	0.005	0.0530	0.005	0.0450
06/09/1998	Spavinaw Lower Creek	EUC08-2	0.03	2.70	0.005	0.0530	0.005	0.0490
06/24/1998	Spavinaw Lower Creek	EUC08-2	0.03	2.52	0.005	0.0450	0.005	
07/16/1998	Spavinaw Lower Creek	EUC08-2	0.03	2.36	0.005	0.0430	0.005	0.0350
07/29/1998	Spavinaw Lower Creek	EUC08-2	0.03	2.13	0.005	0.0400	0.005	0.0350
08/11/1998	Spavinaw Lower Creek	EUC08-2	0.03	2.17	0.005	0.0370	0.005	0.0350
08/27/1998	Spavinaw Lower Creek	EUC08-2	0.03	1.85	0.005	0.0430	0.005	0.0350
09/22/1998	Spavinaw Lower Creek	EUC08-2	0.03	1.76	0.005	0.0340	0.005	0.0320
10/15/1998	Spavinaw Lower Creek	EUC08-2	0.03	3.47	0.005	0.0520	0.005	0.0460
10/28/1998	Spavinaw Lower Creek	EUC08-2	0.03	3.56	0.005	0.0380	0.005	0.0350
11/19/1998	Spavinaw Lower Creek	EUC08-2	0.03	3.68	0.005	0.0420	0.005	0.0410
12/10/1998	Spavinaw Lower Creek	EUC08-2	0.03	3.78	0.005	0.179	0.005	0.0410
01/13/1999	Spavinaw Lower Creek	EUC08-2	0.03		0.005	0.0460	0.005	0.0450
02/18/1999	Spavinaw Lower Creek	EUC08-2	0.03	4.26	0.005	0.0540	0.005	0.0600
03/09/1999	Spavinaw Lower Creek	EUC08-2	0.03	4.71	0.005	0.118	0.005	0.0460
03/13/1999	Spavinaw Lower Creek	EUC08-2	0.03	3.80	0.005	0.0530	0.005	
03/15/1999	Spavinaw Lower Creek	EUC08-2	0.03	4.12	0.005	0.125	0.005	
04/14/1999	Spavinaw Lower Creek	EUC08-2	0.03	3.95	0.005	0.0440	0.005	0.0350
04/27/1999	Spavinaw Lower Creek	EUC08-2	0.03	2.56	0.005	0.175	0.005	0.0920
05/11/1999	Spavinaw Lower Creek	EUC08-2	0.03	3.82	0.005	0.0780	0.005	0.0740
05/27/1999	Spavinaw Lower Creek	EUC08-2	0.03	3.49	0.005	0.0740	0.005	0.0740
06/08/1999	Spavinaw Lower Creek	EUC08-2	0.03	3.18	0.005	0.0500	0.005	0.0470
06/22/1999	Spavinaw Lower Creek	EUC08-2	0.03	3.22	0.005	0.0740	0.005	0.0650
07/14/1999	Spavinaw Lower Creek	EUC08-2	0.03		0.005	0.0520	0.005	0.0490
07/28/1999	Spavinaw Lower Creek	EUC08-2	0.03	3.29	0.005	0.0400	0.005	0.0370
08/12/1999	Spavinaw Lower Creek	EUC08-2	0.03	3.46	0.005	0.0670	0.005	0.0310
08/25/1999	Spavinaw Lower Creek	EUC08-2	0.03	3.18	0.005	0.0450	0.005	0.0440
09/14/1999	Spavinaw Lower Creek	EUC08-2	0.03	3.12	0.005	0.0410	0.005	0.0390
09/28/1999	Spavinaw Lower Creek	EUC08-2	0.03	3.07	0.005	0.0430	0.005	0.0390
10/14/1999	Spavinaw Lower Creek	EUC08-2	0.03	3.17	0.005	0.0200	0.005	0.0030
11/02/1999	Spavinaw Lower Creek	EUC08-2	0.026	2.98	0.008	0.0370	0.008	0.0370
12/06/1999	Spavinaw Lower Creek	EUC08-2	0.026	3.17	0.008	0.0460	0.008	0.0500
01/20/2000	Spavinaw Lower Creek	EUC08-2	0.026	3.56	0.008	0.0170	0.008	0.0050
02/10/2000	Spavinaw Lower Creek	EUC08-2	0.026	3.56	0.008	0.0290	0.008	0.0300
03/08/2000	Spavinaw Lower Creek	EUC08-2	0.026	3.29	0.008	0.0490	0.008	0.0480
04/11/2000	Spavinaw Lower Creek	EUC08-2	0.026	2.79	0.008	0.0400	0.008	0.0360
04/25/2000	Spavinaw Lower Creek	EUC08-2	0.026	2.74	0.008		0.008	0.0340
05/09/2000	Spavinaw Lower Creek	EUC08-2	0.026	2.34	0.008	0.0600	0.008	0.0520
05/25/2000	Spavinaw Lower Creek	EUC08-2	0.026	2.40	0.008	0	0.008	0.0560
06/14/2000	Spavinaw Lower Creek	EUC08-2	0.026	2.44	0.008	0.0470	0.008	0.0420
06/28/2000	Spavinaw Lower Creek	EUC08-2	0.026	3.29	0.008	0.100	0.008	0.0780
07/12/2000	Spavinaw Lower Creek	EUC08-2	0.026	3.12	0.008	0.0500	0.008	0.0530
07/26/2000	Spavinaw Lower Creek	EUC08-2	0.026	2.72	0.008	0.0460	0.008	0.0400
08/09/2000	Spavinaw Lower Creek	EUC08-2	0.026	3.03	0.008	0.0550	0.008	0.0490
08/23/2000	Spavinaw Lower Creek	EUC08-2	0.026	2.84	0.008	0.0430	0.008	0.0410
09/12/2000	Spavinaw Lower Creek	EUC08-2	0.026	2.75	0.008	0.0430	0.008	0.0370
09/27/2000	Spavinaw Lower Creek	EUC08-2	0.026	3.28	0.008	0.0490	0.008	0.0490
10/19/2000	Spavinaw Lower Creek	EUC08-2	0.026	2.87	0.008	0.0370	0.008	0.0340
11/13/2000	Spavinaw Lower Creek	EUC08-2	0.026	3.4	0.008	0.0540	0.008	0.0540

12/12/2000	Spavinaw Lower Creek	EUC08-2	0.026	3.78	0.008	0.0410	0.008	0.0420
01/25/2001	Spavinaw Lower Creek	EUC08-2	0.02	4.1	0.01	0.0320	0.01	0.0340
02/21/2001	Spavinaw Lower Creek	EUC08-2	0.02	5.3	0.01	0.0610	0.01	0.0590
02/21/2001	Spavinaw Lower Creek	EUC08-2	0.02	5.3	0.01	0.0610	0.01	0.0590
03/15/2001	Spavinaw Lower Creek	EUC08-2	0.02	5.0	0.01	0.0540		0.0540
04/09/2001	Spavinaw Lower Creek	EUC08-2	0.02	4.3	0.01	0.0370	0.01	0.0340
05/08/2001	Spavinaw Lower Creek	EUC08-2	0.02	3.69	0.01	0.0340	0.01	0.0340
06/21/2001	Spavinaw Lower Creek	EUC08-2	0.02	3.0	0.01	0.0320	0.01	0.0410
07/12/2001	Spavinaw Lower Creek	EUC08-2	0.02	2.7	0.01	0.0340	0.01	0.0300
08/16/2001	Spavinaw Lower Creek	EUC08-2	0.02	2.4	0.01	0.028	0.01	0.032
09/13/2001	Spavinaw Lower Creek	EUC08-2	0.02	2.2	0.01	0.0320	0.01	0.0290
10/18/2001	Spavinaw Lower Creek	EUC08-2	0.02	2.9	0.01	0.0490	0.01	0.0370
11/15/2001	Spavinaw Lower Creek	EUC08-2	0.02	2.9	0.01	0.033	0.01	0.044
12/12/2001	Spavinaw Lower Creek	EUC08-2	0.02	3.2	0.01	0.0400	0.01	0.0320
01/15/2002	Spavinaw Lower Creek	EUC08-2	0.02	4.5	0.01	0.0400	0.01	0.0330
02/12/2002		EUC08-2	0.025	4.4	0.01	0.0480	0.01	0.0480
10/05/1998	Spavinaw Londagin Bridge	EUC09	0.03	2.92	0.005	0.369	0.005	0.367
10/06/1998	Spavinaw Londagin Bridge	EUC09	0.03	5.20	0.005	0.219	0.005	0.219
04/15/1998	Spavinaw Londagin Bridge	EUC09-1	0.03	3.77	0.005	0.0680	0.005	0.0790
04/28/1998	Spavinaw Londagin Bridge	EUC09-1	0.03	3.39	0.005	0.106	0.005	0.0840
05/14/1998	Spavinaw Londagin Bridge	EUC09-1	0.03	2.90	0.005	0.0850	0.005	0.0770
05/26/1998	Spavinaw Londagin Bridge	EUC09-1	0.03	2.80	0.005	0.108	0.005	0.0980
06/09/1998	Spavinaw Londagin Bridge	EUC09-1	0.03	3.06	0.005	0.0950	0.005	0.0830
06/24/1998	Spavinaw Londagin Bridge	EUC09-1	0.03	2.82	0.005	0.0900	0.005	
07/16/1998	Spavinaw Londagin Bridge	EUC09-1	0.03	2.63	0.005	0.0900	0.005	0.0830
07/29/1998	Spavinaw Londagin Bridge	EUC09-1	0.03	2.41	0.005	0.0850	0.005	0.0800
08/11/1998	Spavinaw Londagin Bridge	EUC09-1	0.03	2.50	0.005	0.0820	0.005	0.0770
08/27/1998	Spavinaw Londagin Bridge	EUC09-1	0.03	2.27	0.005	0.0920	0.005	0.0760
09/10/1998	Spavinaw Londagin Bridge	EUC09-1	0.03	2.21	0.005	0.0860	0.005	0.0700
09/22/1998	Spavinaw Londagin Bridge	EUC09-1	0.03	0.0280	0.005	0.0960	0.005	0.0110
10/15/1998	Spavinaw Londagin Bridge	EUC09-1	0.03	5.15	0.005	0.104	0.005	0.0980
10/28/1998	Spavinaw Londagin Bridge	EUC09-1	0.03	4.40	0.005	0.0900	0.005	0.0860
11/19/1998	Spavinaw Londagin Bridge	EUC09-1	0.03	4.55	0.005	0.0910	0.005	0.0880
12/10/1998	Spavinaw Londagin Bridge	EUC09-1	0.03	4.42	0.005	0.209	0.005	0.0960
01/13/1999	Spavinaw Londagin Bridge	EUC09-1	0.03		0.005	0.0940	0.005	0.0940
02/18/1999	Spavinaw Londagin Bridge	EUC09-1	0.03	6.19	0.005	0.0980	0.005	0.101
03/09/1999	Spavinaw Londagin Bridge	EUC09-1	0.03	4.80	0.005	0.244	0.005	0.0580
04/14/1999	Spavinaw Londagin Bridge	EUC09-1	0.03	4.34	0.005	0.0830	0.005	0.0700
04/27/1999	Spavinaw Londagin Bridge	EUC09-1	0.03	3.06	0.005	0.133	0.005	0.103
05/11/1999	Spavinaw Londagin Bridge	EUC09-1	0.03	4.32	0.005	0.107	0.005	0.102
05/27/1999	Spavinaw Londagin Bridge	EUC09-1	0.03	3.96	0.005	0.106	0.005	0.0930
06/08/1999	Spavinaw Londagin Bridge	EUC09-1	0.03	3.80	0.005	0.0890	0.005	0.0860
06/22/1999	Spavinaw Londagin Bridge	EUC09-1	0.03	3.45	0.005	0.115	0.005	0.108
07/14/1999	Spavinaw Londagin Bridge	EUC09-1	0.03		0.005	0.0800	0.005	0.0800
07/28/1999	Spavinaw Londagin Bridge	EUC09-1	0.03	3.67	0.005	0.0720	0.005	0.0690
08/12/1999	Spavinaw Londagin Bridge	EUC09-1	0.03	3.82	0.005	0.0680	0.005	0.0300
08/25/1999	Spavinaw Londagin Bridge	EUC09-1	0.03	3.49	0.005	0.0870	0.005	0.0850
09/14/1999	Spavinaw Londagin Bridge	EUC09-1	0.03	3.55	0.005	0.0850	0.005	0.0840
09/28/1999	Spavinaw Londagin Bridge	EUC09-1	0.03	3.32	0.005	0.0860	0.005	0.0820
10/14/1999	Spavinaw Londagin Bridge	EUC09-1	0.03	3.51	0.005	0.0200	0.005	0.0030
11/02/1999	Spavinaw Londagin Bridge	EUC09-1	0.026	3.30	0.008	0.0850	0.008	0.0790
12/06/1999	Spavinaw Londagin Bridge	EUC09-1	0.026	3.78	0.008	0.0960	0.008	0.100
01/20/2000	Spavinaw Londagin Bridge	EUC09-1	0.026	4.02	0.008	0.0180	0.008	0.0050
02/10/2000	Spavinaw Londagin Bridge	EUC09-1	0.026	3.92	0.008	0.0790	0.008	0.0810
03/08/2000	Spavinaw Londagin Bridge	EUC09-1	0.026	3.94	0.008	0.106	0.008	0.0950
04/11/2000	Spavinaw Londagin Bridge	EUC09-1	0.026	3.18	0.008	0.0910	0.008	0.0820

04/25/2000	Spavinaw Londagin Bridge	EUC09-1	0.026	3.08	0.008		0.008	0.0820
05/09/2000	Spavinaw Londagin Bridge	EUC09-1	0.026	2.94	0.008	0.117	0.008	0.0950
05/25/2000	Spavinaw Londagin Bridge	EUC09-1	0.026	2.02	0.008	0.752	0.008	0.478
06/14/2000	Spavinaw Londagin Bridge	EUC09-1	0.026	2.90	0.008	0.111	0.008	0.103
06/28/2000	Spavinaw Londagin Bridge	EUC09-1	0.026	3.99	0.008	0.179	0.008	0.115
07/12/2000	Spavinaw Londagin Bridge	EUC09-1	0.026	3.82	0.008	0.0940	0.008	0.0960
07/26/2000	Spavinaw Londagin Bridge	EUC09-1	0.026	3.62	0.008	0.0880	0.008	0.0900
08/09/2000	Spavinaw Londagin Bridge	EUC09-1	0.026	3.81	0.008	0.108	0.008	0.0980
08/23/2000	Spavinaw Londagin Bridge	EUC09-1	0.026	3.66	0.008	0.100	0.008	0.0940
09/12/2000	Spavinaw Londagin Bridge	EUC09-1	0.026	3.42	0.008	0.100	0.008	0.0920
09/27/2000	Spavinaw Londagin Bridge	EUC09-1	0.026	4.14	0.008	0.107	0.008	0.104
10/19/2000	Spavinaw Londagin Bridge	EUC09-1	0.026	3.72	0.008	0.0900	0.008	0.0800
11/13/2000	Spavinaw Londagin Bridge	EUC09-1	0.026	3.9	0.008	0.106	0.008	0.107
12/12/2000	Spavinaw Londagin Bridge	EUC09-1	0.026	4.63	0.008	0.101	0.008	0.0990
01/25/2001	Spavinaw Londagin Bridge	EUC09-1	0.02	5.0	0.01	0.0810	0.01	0.0860
02/21/2001	Spavinaw Londagin Bridge	EUC09-1	0.02	6.4	0.01	0.0930	0.01	0.0920
02/21/2001	Spavinaw Londagin Bridge	EUC09-1	0.02	6.4	0.01	0.0930	0.01	0.0920
03/15/2001	Spavinaw Londagin Bridge	EUC09-1	0.02	5.7	0.01	0.0920		0.0910
04/09/2001	Spavinaw Londagin Bridge	EUC09-1	0.02	4.6	0.01	0.0800	0.01	0.0780
05/08/2001	Spavinaw Londagin Bridge	EUC09-1	0.02	4.22	0.01	0.0870	0.01	0.0850
06/21/2001	Spavinaw Londagin Bridge	EUC09-1	0.02	3.5	0.01	0.0830	0.01	0.0980
07/12/2001	Spavinaw Londagin Bridge	EUC09-1	0.02	3.3	0.01	0.0890	0.01	0.0880
08/16/2001	Spavinaw Londagin Bridge	EUC09-1	0.02	3.0	0.01	0.081	0.01	0.086
09/13/2001	Spavinaw Londagin Bridge	EUC09-1	0.02	2.9	0.01	0.0900	0.01	0.0880
10/18/2001	Spavinaw Londagin Bridge	EUC09-1	0.02	4.0	0.01	0.123	0.01	0.107
11/15/2001	Spavinaw Londagin Bridge	EUC09-1	0.02	3.7	0.01	0.098	0.01	0.116
12/12/2001	Spavinaw Londagin Bridge	EUC09-1	0.02	4.1	0.01	0.0960	0.01	0.0730
01/15/2002	Spavinaw Londagin Bridge	EUC09-1	0.02	5.2	0.01	0.105	0.01	0.0970
02/12/2002		EUC09-1	0.025	5.0	0.01	0.108	0.01	0.107
04/15/1998	Spavinaw 43 Bridge	EUC10-1	0.03	3.93	0.005	0.123	0.005	0.137
04/28/1998	Spavinaw 43 Bridge	EUC10-1	0.03	3.55	0.005	0.141	0.005	0.139
05/14/1998	Spavinaw 43 Bridge	EUC10-1	0.03	3.20	0.005	0.203	0.005	0.153
05/26/1998	Spavinaw 43 Bridge	EUC10-1	0.03	3.14	0.005	0.241	0.005	0.233
06/09/1998	Spavinaw 43 Bridge	EUC10-1	0.03	3.31	0.005	0.226	0.005	0.223
06/24/1998	Spavinaw 43 Bridge	EUC10-1	0.03	3.00	0.005	0.229	0.005	
07/16/1998	Spavinaw 43 Bridge	EUC10-1	0.03	2.76	0.005	0.280	0.005	0.257
07/29/1998	Spavinaw 43 Bridge	EUC10-1	0.03	2.73	0.005	0.267	0.005	0.263
08/11/1998	Spavinaw 43 Bridge	EUC10-1	0.03	2.74	0.005	0.292	0.005	0.278
08/27/1998	Spavinaw 43 Bridge	EUC10-1	0.03	2.52	0.005	0.456	0.005	0.299
09/10/1998	Spavinaw 43 Bridge	EUC10-1	0.03	2.54	0.005	0.338	0.005	0.316
09/22/1998	Spavinaw 43 Bridge	EUC10-1	0.03	2.94	0.005	0.496	0.005	0.366
10/15/1998	Spavinaw 43 Bridge	EUC10-1	0.03	5.53	0.005	0.360	0.005	0.314
10/28/1998	Spavinaw 43 Bridge	EUC10-1	0.03	4.25	0.005	0.316	0.005	0.302
11/19/1998	Spavinaw 43 Bridge	EUC10-1	0.03	4.90	0.005	0.266	0.005	0.0450
12/10/1998	Spavinaw 43 Bridge	EUC10-1	0.03	4.57	0.005	0.187	0.005	0.153
01/13/1999	Spavinaw 43 Bridge	EUC10-1	0.03		0.005	0.320	0.005	0.319
02/18/1999	Spavinaw 43 Bridge	EUC10-1	0.03	6.81	0.005	0.237	0.005	0.219
03/09/1999	Spavinaw 43 Bridge	EUC10-1	0.03	5.16	0.005	0.375	0.005	0.255
04/14/1999	Spavinaw 43 Bridge	EUC10-1	0.03	4.53	0.005	0.156	0.005	0.136
04/27/1999	Spavinaw 43 Bridge	EUC10-1	0.03	3.47	0.005	0.124	0.005	0.109
05/11/1999	Spavinaw 43 Bridge	EUC10-1	0.03	4.92	0.005	0.161	0.005	0.150
05/27/1999	Spavinaw 43 Bridge	EUC10-1	0.03	4.66	0.005	0.147	0.005	0.140
06/08/1999	Spavinaw 43 Bridge	EUC10-1	0.03	4.34	0.005	0.187	0.005	0.178
06/22/1999	Spavinaw 43 Bridge	EUC10-1	0.03	3.76	0.005	0.119	0.005	0.185
07/14/1999	Spavinaw 43 Bridge	EUC10-1	0.03		0.005	0.145	0.005	0.139
07/28/1999	Spavinaw 43 Bridge	EUC10-1	0.03	4.06	0.005	0.153	0.005	0.149

08/12/1999	Spavinaw 43 Bridge	EUC10-1	0.03	3.94	0.005	0.197	0.005	0.143
08/25/1999	Spavinaw 43 Bridge	EUC10-1	0.03	3.52	0.005	0.227	0.005	0.221
09/14/1999	Spavinaw 43 Bridge	EUC10-1	0.03	3.59	0.005	0.269	0.005	0.249
09/28/1999	Spavinaw 43 Bridge	EUC10-1	0.03	3.52	0.005	0.256	0.005	0.245
10/14/1999	Spavinaw 43 Bridge	EUC10-1	0.03	3.72	0.005	0.0210	0.005	0.0030
11/02/1999	Spavinaw 43 Bridge	EUC10-1	0.026	3.61	0.008	0.272	0.008	0.270
12/06/1999	Spavinaw 43 Bridge	EUC10-1	0.026	4.25	0.008	0.263	0.008	0.264
01/20/2000	Spavinaw 43 Bridge	EUC10-1	0.026	4.25	0.008	0.0170	0.008	0.0050
02/10/2000	Spavinaw 43 Bridge	EUC10-1	0.026	4.04	0.008	0.234	0.008	0.245
03/08/2000	Spavinaw 43 Bridge	EUC10-1	0.026	4.34	0.008	0.255	0.008	0.248
04/11/2000	Spavinaw 43 Bridge	EUC10-1	0.026	3.39	0.008	0.265	0.008	0.249
04/25/2000	Spavinaw 43 Bridge	EUC10-1	0.026	3.38	0.008		0.008	0.269
05/09/2000	Spavinaw 43 Bridge	EUC10-1	0.026	3.14	0.008	0.220	0.008	0.201
05/25/2000	Spavinaw 43 Bridge	EUC10-1	0.026	3.05	0.008	0.314	0.008	0.299
06/14/2000	Spavinaw 43 Bridge	EUC10-1	0.026	3.26	0.008	0.287	0.008	0.277
06/28/2000	Spavinaw 43 Bridge	EUC10-1	0.026	4.65	0.008	0.231	0.008	0.180
07/12/2000	Spavinaw 43 Bridge	EUC10-1	0.026	4.34	0.008	0.186	0.008	0.197
07/26/2000	Spavinaw 43 Bridge	EUC10-1	0.026	3.82	0.008	0.220	0.008	0.207
08/09/2000	Spavinaw 43 Bridge	EUC10-1	0.026	4.05	0.008	0.253	0.008	0.219
08/23/2000	Spavinaw 43 Bridge	EUC10-1	0.026	3.85	0.008	0.247	0.008	0.232
09/12/2000	Spavinaw 43 Bridge	EUC10-1	0.026	3.67	0.008	0.281	0.008	0.274
09/27/2000	Spavinaw 43 Bridge	EUC10-1	0.026	4.52	0.008	0.322	0.008	0.319
10/19/2000	Spavinaw 43 Bridge	EUC10-1	0.026	3.71	0.008	0.272	0.008	0.254
11/13/2000	Spavinaw 43 Bridge	EUC10-1	0.026	4.6	0.008	0.293	0.008	0.283
12/12/2000	Spavinaw 43 Bridge	EUC10-1	0.026	4.85	0.008	0.286	0.008	0.283
01/25/2001	Spavinaw 43 Bridge	EUC10-1	0.02	5.0	0.01	0.204	0.01	0.212
02/21/2001	Spavinaw 43 Bridge	EUC10-1	0.02	7.1	0.01	0.150	0.01	0.149
02/21/2001	Spavinaw 43 Bridge	EUC10-1	0.02	7.1	0.01	0.150	0.01	0.149
03/15/2001	Spavinaw 43 Bridge	EUC10-1	0.02	5.9	0.01	0.151		0.152
04/09/2001	Spavinaw 43 Bridge	EUC10-1	0.02	4.6	0.01	0.150	0.01	0.142
05/08/2001	Spavinaw 43 Bridge	EUC10-1	0.02	2.99	0.01	0.192	0.01	0.189
06/21/2001	Spavinaw 43 Bridge	EUC10-1	0.02	3.8	0.01	0.197	0.01	0.196
07/12/2001	Spavinaw 43 Bridge	EUC10-1	0.02	3.4	0.01	0.248	0.01	0.248
08/16/2001	Spavinaw 43 Bridge	EUC10-1	0.02	3.2	0.01	0.311	0.01	0.297
09/13/2001	Spavinaw 43 Bridge	EUC10-1	0.02	3.2	0.01	0.359	0.01	0.339
10/18/2001	Spavinaw 43 Bridge	EUC10-1	0.02	4.6	0.01	0.293	0.01	0.269
11/15/2001	Spavinaw 43 Bridge	EUC10-1	0.02	3.8	0.01	0.277	0.01	0.269
12/12/2001	Spavinaw 43 Bridge	EUC10-1	0.02	4.7	0.01	0.303	0.01	0.265
01/15/2002	Spavinaw 43 Bridge	EUC10-1	0.02	5.4	0.01	0.233	0.01	0.213
02/12/2002		EUC10-1	0.025	5.2	0.01	0.230	0.01	0.227
04/15/1998	Upper Beaty Creek	EUC11-1	0.03	3.83	0.005	0.0310	0.005	0.0290
04/28/1998	Upper Beaty Creek	EUC11-1	0.03	3.35	0.005	0.0630	0.005	0.0500
05/14/1998	Upper Beaty Creek	EUC11-1	0.03	3.10	0.005	0.0660	0.005	0.0570
05/26/1998	Upper Beaty Creek	EUC11-1	0.03	2.53	0.005	0.0840	0.005	0.0660
06/09/1998	Upper Beaty Creek	EUC11-1	0.03	2.69	0.005	0.0750	0.005	0.0560
06/24/1998	Upper Beaty Creek	EUC11-1	0.03	2.38	0.005	0.0680	0.005	
07/16/1998	Upper Beaty Creek	EUC11-1	0.03	2.16	0.005	0.159	0.005	0.0520
07/29/1998	Upper Beaty Creek	EUC11-1	0.03	1.91	0.005	0.0560	0.005	0.0550
08/11/1998	Upper Beaty Creek	EUC11-1	0.03	1.98	0.005	0.0660	0.005	0.0480
08/27/1998	Upper Beaty Creek	EUC11-1	0.03	1.81	0.005	0.0570	0.005	0.0470
09/10/1998	Upper Beaty Creek	EUC11-1	0.03	1.89	0.005	0.0510	0.005	0.0420
09/22/1998	Upper Beaty Creek	EUC11-1	0.03	2.10	0.005	0.0510	0.005	0.0440
10/15/1998	Upper Beaty Creek	EUC11-1	0.03	5.06	0.005	0.0810	0.005	0.0730
10/28/1998	Upper Beaty Creek	EUC11-1	0.03	3.59	0.005	0.0530	0.005	0.0490
11/19/1998	Upper Beaty Creek	EUC11-1	0.03	4.27	0.005	0.298	0.005	0.280
12/10/1998	Upper Beaty Creek	EUC11-1	0.03	4.10	0.005	0.0480	0.005	0.0480

01/13/1999	Upper Beaty Creek	EUC11-1	0.03		0.005	0.0490	0.005	0.0450
02/18/1999	Upper Beaty Creek	EUC11-1	0.03	5.75	0.005	0.0670	0.005	0.0440
03/09/1999	Upper Beaty Creek	EUC11-1	0.03	3.39	0.005	0.365	0.005	0.206
04/14/1999	Upper Beaty Creek	EUC11-1	0.03	3.96	0.005	0.0500	0.005	0.0380
04/27/1999	Upper Beaty Creek	EUC11-1	0.03	2.57	0.005	0.378	0.005	0.301
05/11/1999	Upper Beaty Creek	EUC11-1	0.03	4.56	0.005	0.0690	0.005	0.0640
05/27/1999	Upper Beaty Creek	EUC11-1	0.03	4.32	0.005	0.0750	0.005	0.0670
06/08/1999	Upper Beaty Creek	EUC11-1	0.03	3.96	0.005	0.0730	0.005	0.0720
06/22/1999	Upper Beaty Creek	EUC11-1	0.03	2.83	0.005	0.166	0.005	0.146
07/14/1999	Upper Beaty Creek	EUC11-1	0.03		0.005	0.0450	0.005	0.0420
07/28/1999	Upper Beaty Creek	EUC11-1	0.03	3.76	0.005	0.0510	0.005	0.0480
08/12/1999	Upper Beaty Creek	EUC11-1	0.03	3.46	0.005	0.0670	0.005	0.0310
08/25/1999	Upper Beaty Creek	EUC11-1	0.03	2.80	0.005	0.0590	0.005	0.0570
09/14/1999	Upper Beaty Creek	EUC11-1	0.03	3.98	0.005	0.0810	0.005	0.0770
09/28/1999	Upper Beaty Creek	EUC11-1	0.03	2.80	0.005	0.0540	0.005	0.0520
10/14/1999	Upper Beaty Creek	EUC11-1	0.03	2.68	0.005	0.0200	0.005	0.0040
11/02/1999	Upper Beaty Creek	EUC11-1	0.026	2.30	0.008	0.0380	0.008	0.0360
12/06/1999	Upper Beaty Creek	EUC11-1	0.026	4.12	0.008	0.0920	0.008	0.0820
01/20/2000	Upper Beaty Creek	EUC11-1	0.026	2.87	0.008	0.0170	0.008	0.0050
02/10/2000	Upper Beaty Creek	EUC11-1	0.026	2.70	0.008	0.0270	0.008	0.0250
03/08/2000	Upper Beaty Creek	EUC11-1	0.026	3.58	0.008	0.0460	0.008	0.0420
04/11/2000	Upper Beaty Creek	EUC11-1	0.026	2.43	0.008	0.0450	0.008	0.0330
04/25/2000	Upper Beaty Creek	EUC11-1	0.026	2.43	0.008		0.008	0.0340
05/09/2000	Upper Beaty Creek	EUC11-1	0.026	3.06	0.008	0.0930	0.008	0.0750
05/25/2000	Upper Beaty Creek	EUC11-1	0.026	1.04	0.008	1.60	0.008	1.35
06/14/2000	Upper Beaty Creek	EUC11-1	0.026	2.46	0.008	0.0890	0.008	0.0810
06/28/2000	Upper Beaty Creek	EUC11-1	0.026	4.47	0.008	0.201	0.008	0.0900
07/12/2000	Upper Beaty Creek	EUC11-1	0.026	4.43	0.008	0.0740	0.008	0.0700
07/26/2000	Upper Beaty Creek	EUC11-1	0.026	2.87	0.008	0.0780	0.008	0.0770
08/09/2000	Upper Beaty Creek	EUC11-1	0.026	3.33	0.008	0.111	0.008	0.0960
08/23/2000	Upper Beaty Creek	EUC11-1	0.026	2.84	0.008	0.0810	0.008	0.0720
09/12/2000	Upper Beaty Creek	EUC11-1	0.026	2.32	0.008	0.126	0.008	0.0990
09/27/2000	Upper Beaty Creek	EUC11-1	0.026	2.74	0.008	0.0780	0.008	0.0750
10/19/2000	Upper Beaty Creek	EUC11-1	0.026	2.16	0.008	0.0530	0.008	0.0470
11/13/2000	Upper Beaty Creek	EUC11-1	0.026	3.5	0.008	0.0530	0.008	0.0480
12/12/2000	Upper Beaty Creek	EUC11-1	0.026	3.63	0.008	0.0460	0.008	0.0370
01/25/2001	Upper Beaty Creek	EUC11-1	0.02	4.3	0.01	0.0320	0.01	0.0340
02/21/2001	Upper Beaty Creek	EUC11-1	0.02	6.2	0.01	0.0670	0.01	0.0640
02/21/2001	Upper Beaty Creek	EUC11-1	0.02	6.2	0.01	0.0670	0.01	0.0640
03/15/2001	Upper Beaty Creek	EUC11-1	0.02	5.5	0.01	0.0460		0.0430
04/09/2001	Upper Beaty Creek	EUC11-1	0.02	3.8	0.01	0.0450	0.01	0.0370
05/08/2001	Upper Beaty Creek	EUC11-1	0.02	4.26	0.01	0.0600	0.01	0.0580
06/21/2001	Upper Beaty Creek	EUC11-1	0.02	2.9	0.01	0.0880	0.01	0.0900
07/12/2001	Upper Beaty Creek	EUC11-1	0.02	2.4	0.01	0.0760	0.01	0.0720
08/16/2001	Upper Beaty Creek	EUC11-1	0.02	2.3	0.01	0.063	0.01	0.066
09/13/2001	Upper Beaty Creek	EUC11-1	0.02	2.2	0.01	0.0770	0.01	0.0560
10/18/2001	Upper Beaty Creek	EUC11-1	0.02	4.4	0.01	0.0660	0.01	0.0550
11/15/2001	Upper Beaty Creek	EUC11-1	0.02	2.5	0.01	0.043	0.01	0.06
12/12/2001	Upper Beaty Creek	EUC11-1	0.02	2.6	0.01	0.0370	0.01	0.0330
01/15/2002	Upper Beaty Creek	EUC11-1	0.02	3.8	0.01	0.0420	0.01	0.0360
02/12/2002		EUC11-1	0.025	4.6	0.01	0.0440	0.01	0.0420
06/30/1999	Upper Beaty Creek	EUC11-1645	0.03	1.73	0.005	0.728	0.005	0.0020
10/15/1998	Clouds Creek	EUC12-1	0.03	2.17	0.005	0.0390	0.005	0.0270
02/18/1999	Clouds Creek	EUC12-1	0.03	2.29	0.005	0.0860	0.005	0.0240
04/27/1999	Clouds Creek	EUC12-1	0.03	0.840	0.005	0.0760	0.005	0.0460
05/11/1999	Clouds Creek	EUC12-1	0.03	1.35	0.005	0.0300	0.005	0.0310

05/27/1999	Clouds Creek	EUC12-1	0.03	0.973	0.005	0.0310	0.005	0.0260
06/22/1999	Clouds Creek	EUC12-1	0.03	1.13	0.005	0.0290	0.005	0.0220
12/06/1999	Clouds Creek	EUC12-1	0.026	2.22	0.008	0.0270	0.008	0.0210
03/08/2000	Clouds Creek	EUC12-1	0.026	1.86	0.008	0.0180	0.008	0.0170
05/09/2000	Clouds Creek	EUC12-1	0.026	1.02	0.008	0.0230	0.008	0.0150
06/28/2000	Clouds Creek	EUC12-1	0.026	1.19	0.008	0.0780	0.008	0.0360
02/21/2001	Clouds Creek	EUC12-1	0.02	2.4	0.01	0.0190	0.01	0.0190
02/21/2001	Clouds Creek	EUC12-1	0.02	2.4	0.01	0.0190	0.01	0.0190
10/05/1998	Black Hollow	SPA06	0.03	0.490	0.005	0.0760	0.005	0.0490
10/05/1998	Black Hollow	SPA06	0.03	0.850	0.005	0.159	0.005	0.0580
10/05/1998	Black Hollow	SPA06	0.03	1.17	0.005	0.135	0.005	0.0300
10/05/1998	Black Hollow	SPA06	0.03	1.26	0.005	0.0410	0.005	0.0250
10/06/1998	Black Hollow	SPA06	0.03	1.94	0.005	0.0520	0.005	0.0330
02/24/2001	Black Hollow	SPA06	0.02	0.88	0.01	0.29		
02/24/2001	Black Hollow	SPA06	0.02	0.88	0.01	0.29		
02/24/2001	Black Hollow	SPA06	0.02	1.1	0.01	0.050		
02/24/2001	Black Hollow	SPA06	0.02	1.1	0.01	0.050		
02/24/2001	Black Hollow	SPA06	0.02	1.4	0.01	0.033		
02/24/2001	Black Hollow	SPA06	0.02	1.4	0.01	0.033		
02/24/2001	Black Hollow	SPA06	0.02	1.5	0.01	0.028		
02/24/2001	Black Hollow	SPA06	0.02	1.5	0.01	0.028		
02/24/2001	Black Hollow	SPA06	0.02	1.5	0.01	0.030		
02/24/2001	Black Hollow	SPA06	0.02	1.5	0.01	0.030		
02/24/2001	Black Hollow	SPA06	0.02	1.4	0.01	0.038		
02/24/2001	Black Hollow	SPA06	0.02	1.4	0.01	0.038		
02/24/2001	Black Hollow	SPA06	0.02	1.5	0.01	0.039		
02/24/2001	Black Hollow	SPA06	0.02	1.5	0.01	0.039		
02/24/2001	Black Hollow	SPA06	0.02	1.6	0.01	0.030		
02/24/2001	Black Hollow	SPA06	0.02	1.6	0.01	0.030		
03/05/2000	Black Hollow	SPA06-	0.026	0.58	0.008	0.0260	0.008	0.0030
03/05/2000	Black Hollow	SPA06-	0.026	0.61	0.008	0.0250	0.008	0.0030
03/05/2000	Black Hollow	SPA06-	0.026	0.63	0.008	0.0210	0.008	0.0030
03/05/2000	Black Hollow	SPA06-	0.026	0.62	0.008	0.0220	0.008	0.0030
03/05/2000	Black Hollow	SPA06-	0.026	0.62	0.008	0.0230	0.008	0.0030
03/05/2000	Black Hollow	SPA06-	0.026	0.61	0.008	0.0380	0.008	0.0030
03/05/2000	Black Hollow	SPA06-	0.026	0.62	0.008	0.0200	0.008	0.0030
03/05/2000	Black Hollow	SPA06-	0.026	0.63	0.008	0.0220	0.008	0.0030
04/15/1998	Black Hollow	SPA06-1	0.03	0.241	0.005	0.0140	0.005	0.0150
04/28/1998	Black Hollow	SPA06-1	0.03	0.204	0.005	0.0260	0.005	0.0180
05/14/1998	Black Hollow	SPA06-1	0.03	0.169	0.005	0.0250	0.005	0.0170
05/26/1998	Black Hollow	SPA06-1	0.03	0.188	0.005	0.0260	0.005	0.0190
06/09/1998	Black Hollow	SPA06-1	0.03	0.130	0.005	0.0220	0.005	0.0150
06/24/1998	Black Hollow	SPA06-1	0.03	0.137	0.005	0.0290	0.005	
09/15/1998	Black Hollow	SPA06-1	0.03	0.754	0.005	0.0330	0.005	0.0180
09/22/1998	Black Hollow	SPA06-1	0.03	0.498	0.005	0.0250	0.005	0.0190
10/15/1998	Black Hollow	SPA06-1	0.03	1.10	0.005	0.0180	0.005	0.0170
10/28/1998	Black Hollow	SPA06-1	0.03	0.917	0.005	0.0220	0.005	0.0170
11/19/1998	Black Hollow	SPA06-1	0.03	0.832	0.005	0.0200	0.005	0.0160
12/10/1998	Black Hollow	SPA06-1	0.03	0.679	0.005	0.0620	0.005	0.0140
01/13/1999	Black Hollow	SPA06-1	0.03	0.481	0.005	0.0240	0.005	0.0170
02/18/1999	Black Hollow	SPA06-1	0.03	1.08	0.005	0.0420	0.005	0.0160
03/09/1999	Black Hollow	SPA06-1	0.03	0.907	0.005		0.005	0.0130
04/14/1999	Black Hollow	SPA06-1	0.03		0.005	0.0110	0.005	
04/27/1999	Black Hollow	SPA06-1	0.03	0.493	0.005	0.0440	0.005	0.0260
05/11/1999	Black Hollow	SPA06-1	0.03	0.358	0.005	0.0190	0.005	0.0180
05/27/1999	Black Hollow	SPA06-1	0.03	0.309	0.005	0.0190	0.005	0.0160
06/08/1999	Black Hollow	SPA06-1	0.03	0.248	0.005	0.0140	0.005	0.0160
06/22/1999	Black Hollow	SPA06-1	0.03	0.284	0.005	0.0190	0.005	0.0140

07/14/1999	Black Hollow	SPA06-1	0.03		0.005	0.0180	0.005	0.0150
07/28/1999	Black Hollow	SPA06-1	0.03	0.177	0.005	0.0190	0.005	0.0130
08/12/1999	Black Hollow	SPA06-1	0.03	0.129	0.005	0.0220	0.005	0.0120
03/08/2000	Black Hollow	SPA06-1	0.026	0.679	0.008	0.0190	0.008	0.0200
04/11/2000	Black Hollow	SPA06-1	0.026	0.438	0.008	0.0140	0.008	0.0140
04/25/2000	Black Hollow	SPA06-1	0.026	0.391	0.008		0.008	0.0150
05/09/2000	Black Hollow	SPA06-1	0.026	0.476	0.008	0.0250	0.008	0.0190
05/11/2000	Black Hollow	SPA06-1	0.026	0.615	0.008	0.0720	0.008	0.0010
05/11/2000	Black Hollow	SPA06-1	0.026	0.626	0.008	0.142	0.008	0.0010
05/11/2000	Black Hollow	SPA06-1	0.026	0.666	0.008	0.0360	0.008	0.0010
05/11/2000	Black Hollow	SPA06-1	0.026	0.651	0.008	0.0440	0.008	0.0010
05/11/2000	Black Hollow	SPA06-1	0.026	0.644	0.008	0.0210	0.008	0.0010
05/11/2000	Black Hollow	SPA06-1	0.026	0.635	0.008	0.0710	0.008	0.0010
05/11/2000	Black Hollow	SPA06-1	0.026	0.631	0.008	0.0370	0.008	0.0010
05/11/2000	Black Hollow	SPA06-1	0.026	0.635	0.008	0.0370	0.008	0.0010
05/25/2000	Black Hollow	SPA06-1	0.026	0.398	0.008	0.0170	0.008	0.0190
06/14/2000	Black Hollow	SPA06-1	0.026	0.350	0.008	0.0260	0.008	0.0190
06/28/2000	Black Hollow	SPA06-1	0.026	0.381	0.008	0.0480	0.008	0.0210
07/12/2000	Black Hollow	SPA06-1	0.026	0.234	0.008	0.0260	0.008	0.0220
07/26/2000	Black Hollow	SPA06-1	0.026	0.226	0.008	0.0150	0.008	0.0150
08/09/2000	Black Hollow	SPA06-1	0.026	0.255	0.008	0.0310	0.008	0.0170
08/23/2000	Black Hollow	SPA06-1	0.026	0.213	0.008	0.0210	0.008	0.0190
02/21/2001	Black Hollow	SPA06-1	0.02	0.91	0.01	0.0140	0.01	0.0150
02/21/2001	Black Hollow	SPA06-1	0.02	0.91	0.01	0.0140	0.01	0.0150
03/15/2001	Black Hollow	SPA06-1	0.02	1.3	0.01	0.0460		0.0140
05/08/2001	Black Hollow	SPA06-1	0.02	1.12	0.01	0.0100	0.01	0.0160

## Appendix D

#### EUC04 Total Phos Model #4

STATION NAME:  
STATION NUMBER: EUC04  
DRAINAGE AREA: 20.9 SQUARE MILES

CONSTITUENT: TOTAL Phos  
LOAD ESTIMATES FOR 19980101 TO 20020315  
TOTAL NUMBER OF OBS.: 29 NUMBER OF UNCENSORED OBS.: 26  
CALIBRATION DATA PERIOD OF RECORD: 1998 TO 2002

CALIBRATION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
11. 1. 2. 4. 6. 10. 26. 79.

PREDICTION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
6. 0. 1. 1. 2. 5. 12. 412.

WARNING: THE RATIO OF LARGEST PREDICTION DATA SET STEAMFLOW AND LARGEST CALIBRATION DATA SET STREAMFLOW EXCEEDS 2.0

RATING-CURVE MODEL SELECTED BY USER

LOG STREAMFLOW ADJUSTMENT: -1.8262

DECIMAL TIME ADJUSTMENT : -1998.0

MAXIMUM LIKELIHOOD ESTIMATE OF SELECTED MODEL

-----  
 $\ln(\text{LOAD}) = -6.5952\text{E}-01 + 1.4691\text{E}+00 \ln(\text{FLOW}) - 4.3135\text{E}-01 \sin(\text{DECTIME})$   
- 1.6948E-01 COS(DECTIME)

ESTIMATED RESIDUAL VARIANCE = 0.354

TURNBULL-WEISS LIKELIHOOD RATIO NORMALITY TEST STATISTIC = 1.62 ( 2 DF)  
PROBABILITY LEVEL = 0.444

LINEAR ATTRIBUTION ESTIMATE OF SELECTED MODEL

-----  
 $\ln(\text{LOAD}) = -6.3374\text{E}-01 + 1.4665\text{E}+00 \ln(\text{FLOW}) - 3.8133\text{E}-01 \sin(\text{DECTIME})$   
- 1.0313E-01 COS(DECTIME)

ESTIMATED RESIDUAL VARIANCE = 0.347

LEAST ABSOLUTE DEVIATION ESTIMATE OF SELECTED MODEL

-----  
 $\ln(\text{LOAD}) = -7.4863\text{E}-01 + 1.3165\text{E}+00 \ln(\text{FLOW}) - 1.8909\text{E}-01 \sin(\text{DECTIME})$   
+ 9.2996E-03 COS(DECTIME)

STATION:  
STATION NUMBER: EUC04

LOADS ESTIMATED BY RATING CURVE METHOD (MAXIMUM LIKELIHOOD PARAM. EST.)

-----  
AVERAGE LOAD (LBS/DAY) ANNUAL SPRING SUMMER FALL WINTER  
STD DEV LOAD (LBS/DAY) 1.00 0.94 1.10 0.89 1.20  
0.36 0.20 0.33 0.56 0.54

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.001 0.008 0.011 0.015 0.021 0.030 0.048 0.130

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.000 0.050 0.120 0.410 1.300 3.300 15.000 190.000

LOADS ESTIMATED BY RATING CURVE METHOD (LINEAR ATTRIBUTION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	1.20	1.00	1.10	1.00	1.50
STD DEV LOAD (LBS/DAY)	0.40	0.24	0.45	0.57	0.48

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.001 0.009 0.012 0.016 0.023 0.032 0.050 0.160

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.000 0.054 0.130 0.430 1.500 3.500 16.000 220.000

LOADS ESTIMATED BY RATING CURVE METHOD (LEAST ABSOLUTE DEVIATION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	0.91	1.00	0.77	0.58	1.20
STD DEV LOAD (LBS/DAY)	0.53	0.47	0.33	0.58	0.95

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.003 0.012 0.014 0.017 0.022 0.026 0.037 0.075

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.000 0.069 0.160 0.500 1.500 3.000 13.000 140.000

LOAD ESTIMATED BY BEALE RATIO ESTIMATOR

## EUC05 Total Phos Model #8

STATION NAME:  
STATION NUMBER: EUC05  
DRAINAGE AREA: 87.0 SQUARE MILES

CONSTITUENT: TOTAL Phos  
LOAD ESTIMATES FOR 19980101 TO 20020315  
TOTAL NUMBER OF OBS.: 35 NUMBER OF UNCENSORED OBS.: 33  
CALIBRATION DATA PERIOD OF RECORD: 1998 TO 2002

CALIBRATION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
40. 5. 8. 12. 20. 39. 97. 362.

PREDICTION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
26. 0. 2. 5. 9. 23. 51. 1556.

WARNING: THE RATIO OF LARGEST PREDICTION DATA SET STREAMFLOW AND LARGEST CALIBRATION DATA SET STREAMFLOW EXCEEDS 2.0

RATING-CURVE MODEL SELECTED BY USER

LOG STREAMFLOW ADJUSTMENT: -2.9816

DECIMAL TIME ADJUSTMENT : -1998.0

MAXIMUM LIKELIHOOD ESTIMATE OF SELECTED MODEL

-----  
 $\ln(\text{LOAD}) = + 7.8928E-01 + 1.0690E+00 \ln(\text{FLOW}) + 2.3334E-01 \ln(\text{FLOW})^{**2}$   
+ 1.5915E-01 SIN(DECTIME) - 2.4469E-01 COS(DECTIME)  
- 2.3286E-01 DECTIME

ESTIMATED RESIDUAL VARIANCE = 0.365

TURNBULL-WEISS LIKELIHOOD RATIO NORMALITY TEST STATISTIC = 11.78 ( 4 DF)  
PROBABILITY LEVEL = 0.019

LINEAR ATTRIBUTION ESTIMATE OF SELECTED MODEL

-----  
 $\ln(\text{LOAD}) = + 7.4927E-01 + 1.0519E+00 \ln(\text{FLOW}) + 2.3504E-01 \ln(\text{FLOW})^{**2}$   
+ 1.6154E-01 SIN(DECTIME) - 2.0871E-01 COS(DECTIME)  
- 1.9335E-01 DECTIME

ESTIMATED RESIDUAL VARIANCE = 0.365

LEAST ABSOLUTE DEVIATION ESTIMATE OF SELECTED MODEL

-----  
 $\ln(\text{LOAD}) = + 5.1023E-01 + 9.3855E-01 \ln(\text{FLOW}) + 2.7586E-01 \ln(\text{FLOW})^{**2}$   
+ 9.9340E-02 SIN(DECTIME) - 2.9167E-01 COS(DECTIME)  
- 1.3625E-01 DECTIME

WARNING: ONE OF THE MAXIMUM PREDICTED CONCENTRATIONS EXCEEDS TWICE THE MAXIMUM OBSERVED SAMPLE CONCENTRATION OF 0.070 MG/L

STATION:  
STATION NUMBER: EUC05

LOADS ESTIMATED BY RATING CURVE METHOD (MAXIMUM LIKELIHOOD PARAM. EST.)

-----  
AVERAGE LOAD (LBS/DAY) ANNUAL SPRING SUMMER FALL WINTER  
STD DEV LOAD (LBS/DAY) 15. 10. 18. 11. 19.  
66. 3. 39. 240. 62.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 -0.004 0.015 0.019 0.028 0.038 0.054 0.100 0.740

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 -0.001 0.430 0.820 2.500 7.100 19.000 160.000 4800.000

LOADS ESTIMATED BY RATING CURVE METHOD (LINEAR ATTRIBUTION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	24.	10.	28.	20.	37.
STD DEV LOAD (LBS/DAY)	44.	5.	49.	39.	81.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.009 0.017 0.022 0.029 0.048 0.110 0.960 38.000

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.28 0.56 0.93 2.70 7.60 19.00 170.00 12000.00

LOADS ESTIMATED BY RATING CURVE METHOD (LEAST ABSOLUTE DEVIATION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	30.	10.	37.	25.	46.
STD DEV LOAD (LBS/DAY)	220.	9.	190.	230.	420.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.009 0.018 0.024 0.037 0.071 0.200 2.300 300.000

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.45 0.77 1.20 2.60 7.30 19.00 150.00 16000.00

LOAD ESTIMATED BY BEALE RATIO ESTIMATOR

AVERAGE ANNUAL LOAD (LBS/DAY): 8.7

## EUC06 Total Phos Model #8

STATION NAME:  
STATION NUMBER: EUC06  
DRAINAGE AREA: 152.8 SQUARE MILES

CONSTITUENT: TOTAL Phos  
LOAD ESTIMATES FOR 19980101 TO 20020315  
TOTAL NUMBER OF OBS.: 218 NUMBER OF UNCENSORED OBS.: 218  
CALIBRATION DATA PERIOD OF RECORD: 1998 TO 2002

CALIBRATION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
302. 0. 7. 16. 68. 210. 454. 3170.

PREDICTION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
50. 0. 5. 10. 20. 47. 103. 3170.

RATING-CURVE MODEL SELECTED BY USER

LOG STREAMFLOW ADJUSTMENT: -4.2119

DECIMAL TIME ADJUSTMENT : -1998.0

MAXIMUM LIKELIHOOD ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \ln(\text{LOAD}) = & + 3.0627E+00 + 1.4671E+00 \ln(\text{FLOW}) + 5.4360E-02 \ln(\text{FLOW})^{**2} \\ & - 3.8317E-01 \sin(\text{DECTIME}) - 1.7645E-01 \cos(\text{DECTIME}) \\ & + 8.4633E-02 \text{DECTIME} \end{aligned}$$

ESTIMATED RESIDUAL VARIANCE = 0.246

TURNBULL-WEISS LIKELIHOOD RATIO NORMALITY TEST STATISTIC = 86.41 ( 40 DF)  
PROBABILITY LEVEL = 0.001

LINEAR ATTRIBUTION ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \ln(\text{LOAD}) = & + 3.0627E+00 + 1.4671E+00 \ln(\text{FLOW}) + 5.4360E-02 \ln(\text{FLOW})^{**2} \\ & - 3.8317E-01 \sin(\text{DECTIME}) - 1.7645E-01 \cos(\text{DECTIME}) \\ & + 8.4633E-02 \text{DECTIME} \end{aligned}$$

ESTIMATED RESIDUAL VARIANCE = 0.246

LEAST ABSOLUTE DEVIATION ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \ln(\text{LOAD}) = & + 3.0800E+00 + 1.4844E+00 \ln(\text{FLOW}) + 6.7904E-02 \ln(\text{FLOW})^{**2} \\ & - 3.5298E-01 \sin(\text{DECTIME}) - 1.9209E-01 \cos(\text{DECTIME}) \\ & + 5.0135E-02 \text{DECTIME} \end{aligned}$$

STATION:  
STATION NUMBER: EUC06

LOADS ESTIMATED BY RATING CURVE METHOD (MAXIMUM LIKELIHOOD PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	51.	32.	78.	35.	59.
STD DEV LOAD (LBS/DAY)	4.	2.	8.	4.	5.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.027 0.042 0.049 0.060 0.082 0.110 0.200 1.100

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)

MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.03	2.20	4.70	13.00	42.00	110.00	510.00	18000.00

LOADS ESTIMATED BY RATING CURVE METHOD (LINEAR ATTRIBUTION PARAM. EST.)

AVERAGE LOAD (LBS/DAY)	ANNUAL	SPRING	SUMMER	FALL	WINTER
STD DEV LOAD (LBS/DAY)	52.	32.	79.	35.	60.
	5.	2.	10.	6.	7.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)

MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.027	0.042	0.049	0.060	0.083	0.110	0.200	1.100

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)

MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.03	2.20	4.70	13.00	43.00	110.00	510.00	18000.00

LOADS ESTIMATED BY RATING CURVE METHOD (LEAST ABSOLUTE DEVIATION PARAM. EST.)

AVERAGE LOAD (LBS/DAY)	ANNUAL	SPRING	SUMMER	FALL	WINTER
STD DEV LOAD (LBS/DAY)	59.	34.	94.	40.	68.
	6.	7.	13.	4.	6.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)

MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.027	0.041	0.049	0.058	0.081	0.120	0.220	1.500

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)

MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.05	2.10	4.60	13.00	43.00	110.00	530.00	23000.00

LOAD ESTIMATED BY BEALE RATIO ESTIMATOR

AVERAGE ANNUAL LOAD (LBS/DAY): 110.

## EUC07 Total Phos Model #5

STATION NAME:  
STATION NUMBER: EUC07  
DRAINAGE AREA: 50.6 SQUARE MILES

CONSTITUENT: TOTAL Phos  
LOAD ESTIMATES FOR 19980101 TO 20020315  
TOTAL NUMBER OF OBS.: 46 NUMBER OF UNCENSORED OBS.: 40  
CALIBRATION DATA PERIOD OF RECORD: 1998 TO 2002

CALIBRATION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
16. 2. 3. 5. 8. 18. 27. 186.

PREDICTION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
15. 0. 1. 3. 5. 13. 29. 967.

WARNING: THE RATIO OF LARGEST PREDICTION DATA SET STREAMFLOW AND LARGEST CALIBRATION DATA SET STREAMFLOW EXCEEDS 2.0

RATING-CURVE MODEL SELECTED BY USER

LOG STREAMFLOW ADJUSTMENT: -2.0233

DECIMAL TIME ADJUSTMENT : -1998.0

MAXIMUM LIKELIHOOD ESTIMATE OF SELECTED MODEL

-----  
 $\text{LN(LOAD)} = -4.2250\text{E-}01 + 8.5712\text{E-}01 \text{LN(FLOW)} + 2.0482\text{E-}01 \text{LN(FLOW)}^{**2}$   
- 2.0743E-01 DECTIME

ESTIMATED RESIDUAL VARIANCE = 0.333

TURNBULL-WEISS LIKELIHOOD RATIO NORMALITY TEST STATISTIC = 24.45 ( 6 DF)  
PROBABILITY LEVEL = 0.001

LINEAR ATTRIBUTION ESTIMATE OF SELECTED MODEL

-----  
 $\text{LN(LOAD)} = -5.2705\text{E-}01 + 8.6292\text{E-}01 \text{LN(FLOW)} + 1.9946\text{E-}01 \text{LN(FLOW)}^{**2}$   
- 1.1808E-01 DECTIME

ESTIMATED RESIDUAL VARIANCE = 0.326

LEAST ABSOLUTE DEVIATION ESTIMATE OF SELECTED MODEL

-----  
 $\text{LN(LOAD)} = -8.7824\text{E-}01 + 9.0968\text{E-}01 \text{LN(FLOW)} + 1.8691\text{E-}01 \text{LN(FLOW)}^{**2}$   
- 2.7229E-02 DECTIME

WARNING: ONE OF THE MAXIMUM PREDICTED CONCENTRATIONS EXCEEDS TWICE THE MAXIMUM OBSERVED SAMPLE CONCENTRATION OF 0.055 MG/L

STATION:  
STATION NUMBER: EUC07

LOADS ESTIMATED BY RATING CURVE METHOD (MAXIMUM LIKELIHOOD PARAM. EST.)

-----  
AVERAGE LOAD (LBS/DAY) ANNUAL SPRING SUMMER FALL WINTER  
STD DEV LOAD (LBS/DAY) 9.10 0.98 1.00 16.00 18.00

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.008 0.012 0.016 0.020 0.029 0.050 0.170 0.460

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.071 0.230 0.380 1.000 2.600 7.000 43.000 1500.000

LOADS ESTIMATED BY RATING CURVE METHOD (LINEAR ATTRIBUTION PARAM. EST.)  
 -----

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	7.	3.	3.	10.	13.
STD DEV LOAD (LBS/DAY)	31.	2.	3.	50.	67.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.011 0.015 0.017 0.023 0.036 0.071 0.450 16.000

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.19 0.29 0.45 1.20 2.90 7.50 50.00 3700.00

LOADS ESTIMATED BY RATING CURVE METHOD (LEAST ABSOLUTE DEVIATION PARAM. EST.)  
 -----

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	7.	3.	3.	9.	13.
STD DEV LOAD (LBS/DAY)	6.	2.	2.	8.	12.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.014 0.016 0.018 0.023 0.036 0.066 0.340 7.800

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.19 0.29 0.47 1.10 2.90 7.60 51.00 4000.00

LOAD ESTIMATED BY BEALE RATIO ESTIMATOR  
 -----

AVERAGE ANNUAL LOAD (LBS/DAY): 2.1 - 2.2

## EUC08 Total Phos Model #8

STATION NAME:  
STATION NUMBER: EUC08  
DRAINAGE AREA: 516.9 SQUARE MILES

CONSTITUENT: TOTAL Phos  
LOAD ESTIMATES FOR 19980101 TO 20020315  
TOTAL NUMBER OF OBS.: 174 NUMBER OF UNCENSORED OBS.: 174  
CALIBRATION DATA PERIOD OF RECORD: 1998 TO 2002

CALIBRATION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
741. 13. 39. 62. 123. 333. 2536. 7275.

PREDICTION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
182. 13. 38. 55. 92. 159. 317. 7275.

RATING-CURVE MODEL SELECTED BY USER

LOG STREAMFLOW ADJUSTMENT: -4.8156

DECIMAL TIME ADJUSTMENT : -1998.0

MAXIMUM LIKELIHOOD ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \ln(\text{LOAD}) = & + 3.6528\text{E+00} + 1.4735\text{E+00} \ln(\text{FLOW}) + 6.9433\text{E-02} \ln(\text{FLOW})^{**2} \\ & - 1.5253\text{E-01} \sin(\text{DECTIME}) - 1.0071\text{E-01} \cos(\text{DECTIME}) \\ & - 5.0856\text{E-02} \text{ DECTIME} \end{aligned}$$

ESTIMATED RESIDUAL VARIANCE = 0.153

TURNBULL-WEISS LIKELIHOOD RATIO NORMALITY TEST STATISTIC = 102.42 ( 31 DF)  
PROBABILITY LEVEL = 0.001

LINEAR ATTRIBUTION ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \ln(\text{LOAD}) = & + 3.6528\text{E+00} + 1.4735\text{E+00} \ln(\text{FLOW}) + 6.9433\text{E-02} \ln(\text{FLOW})^{**2} \\ & - 1.5253\text{E-01} \sin(\text{DECTIME}) - 1.0071\text{E-01} \cos(\text{DECTIME}) \\ & - 5.0856\text{E-02} \text{ DECTIME} \end{aligned}$$

ESTIMATED RESIDUAL VARIANCE = 0.153

LEAST ABSOLUTE DEVIATION ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \ln(\text{LOAD}) = & + 3.6138\text{E+00} + 1.3829\text{E+00} \ln(\text{FLOW}) + 7.5722\text{E-02} \ln(\text{FLOW})^{**2} \\ & - 9.3599\text{E-02} \sin(\text{DECTIME}) - 6.5244\text{E-02} \cos(\text{DECTIME}) \\ & - 5.6260\text{E-02} \text{ DECTIME} \end{aligned}$$

STATION:  
STATION NUMBER: EUC08

LOADS ESTIMATED BY RATING CURVE METHOD (MAXIMUM LIKELIHOOD PARAM. EST.)

AVERAGE LOAD (LBS/DAY)	ANNUAL	SPRING	SUMMER	FALL	WINTER
STD DEV LOAD (LBS/DAY)	210.	140.	460.	36.	200.
	14.	8.	41.	3.	14.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.030 0.041 0.048 0.061 0.090 0.130 0.330 1.300

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
2. 12. 24. 52. 150. 400. 2900. 51000.

LOADS ESTIMATED BY RATING CURVE METHOD (LINEAR ATTRIBUTION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	210.	140.	460.	36.	200.
STD DEV LOAD (LBS/DAY)	21.	9.	61.	4.	20.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.030 0.041 0.048 0.062 0.091 0.130 0.330 1.300

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 2. 12. 24. 52. 150. 400. 3000. 51000.

LOADS ESTIMATED BY RATING CURVE METHOD (LEAST ABSOLUTE DEVIATION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	180.	140.	370.	34.	180.
STD DEV LOAD (LBS/DAY)	12.	7.	36.	2.	10.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.037 0.045 0.051 0.063 0.088 0.120 0.280 1.000

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 3. 13. 25. 53. 150. 380. 2600. 39000.

LOAD ESTIMATED BY BEALE RATIO ESTIMATOR

AVERAGE ANNUAL LOAD (LBS/DAY): 720.

## EUC09 Total Phos Model #2

STATION NAME:  
STATION NUMBER: EUC09  
DRAINAGE AREA: 423.5 SQUARE MILES

CONSTITUENT: TOTAL Phos  
LOAD ESTIMATES FOR 19980101 TO 20020315  
TOTAL NUMBER OF OBS.: 71 NUMBER OF UNCENSORED OBS.: 71  
CALIBRATION DATA PERIOD OF RECORD: 1998 TO 2002

CALIBRATION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
165. 11. 32. 45. 80. 150. 360. 1194.

PREDICTION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
148. 10. 31. 45. 77. 131. 259. 6469.

WARNING: THE RATIO OF LARGEST PREDICTION DATA SET STEAMFLOW AND LARGEST CALIBRATION DATA SET STREAMFLOW EXCEEDS 2.0

RATING-CURVE MODEL SELECTED BY USER

LOG STREAMFLOW ADJUSTMENT: -4.3813

MAXIMUM LIKELIHOOD ESTIMATE OF SELECTED MODEL

LN(LOAD) = + 3.6826E+00 + 1.1872E+00 LN(FLOW) + 6.0677E-02 LN(FLOW)\*\*2

ESTIMATED RESIDUAL VARIANCE = 0.157

TURNBULL-WEISS LIKELIHOOD RATIO NORMALITY TEST STATISTIC = 64.70 ( 11 DF)  
PROBABILITY LEVEL = 0.001

LINEAR ATTRIBUTION ESTIMATE OF SELECTED MODEL

LN(LOAD) = + 3.6826E+00 + 1.1872E+00 LN(FLOW) + 6.0677E-02 LN(FLOW)\*\*2

ESTIMATED RESIDUAL VARIANCE = 0.157

LEAST ABSOLUTE DEVIATION ESTIMATE OF SELECTED MODEL

LN(LOAD) = + 3.6954E+00 + 1.1155E+00 LN(FLOW) + 7.4757E-02 LN(FLOW)\*\*2

STATION:  
STATION NUMBER: EUC09

LOADS ESTIMATED BY RATING CURVE METHOD (MAXIMUM LIKELIHOOD PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	150.	150.	250.	38.	170.
STD DEV LOAD (LBS/DAY)	37.	14.	100.	2.	36.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.085 0.091 0.099 0.110 0.130 0.170 0.260 0.630

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
5. 22. 41. 78. 190. 420. 1800. 22000.

LOADS ESTIMATED BY RATING CURVE METHOD (LINEAR ATTRIBUTION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	160.	150.	280.	39.	180.
STD DEV LOAD (LBS/DAY)	30.	18.	74.	3.	30.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)							
MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.087	0.092	0.100	0.110	0.140	0.170	0.270	0.740

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)							
MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
5.	22.	41.	79.	190.	430.	1900.	26000.

LOADS ESTIMATED BY RATING CURVE METHOD (LEAST ABSOLUTE DEVIATION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	160.	150.	260.	38.	170.
STD DEV LOAD (LBS/DAY)	21.	13.	55.	3.	21.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)							
MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.096	0.097	0.100	0.110	0.130	0.160	0.250	0.710

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)							
MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
6.	23.	41.	77.	180.	390.	1700.	25000.

LOAD ESTIMATED BY BEALE RATIO ESTIMATOR

AVERAGE ANNUAL LOAD (LBS/DAY): 140.

## EUC10 Total Phos Model #1

STATION NAME:  
STATION NUMBER: EUC10  
DRAINAGE AREA: 268.9 SQUARE MILES

CONSTITUENT: TOTAL Phos  
LOAD ESTIMATES FOR 19980101 TO 20020315  
TOTAL NUMBER OF OBS.: 67 NUMBER OF UNCENSORED OBS.: 67  
CALIBRATION DATA PERIOD OF RECORD: 1998 TO 2002

CALIBRATION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
76. 7. 19. 27. 47. 92. 178. 446.

PREDICTION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
94. 7. 20. 28. 49. 82. 161. 4962.

WARNING: THE RATIO OF LARGEST PREDICTION DATA SET STEAMFLOW AND LARGEST CALIBRATION DATA SET STREAMFLOW EXCEEDS 2.0

RATING-CURVE MODEL SELECTED BY USER

LOG STREAMFLOW ADJUSTMENT: -3.8548

MAXIMUM LIKELIHOOD ESTIMATE OF SELECTED MODEL

-----  
LN(LOAD) = + 4.0173E+00 + 8.5143E-01 LN(FLOW)

ESTIMATED RESIDUAL VARIANCE = 0.266

TURNBULL-WEISS LIKELIHOOD RATIO NORMALITY TEST STATISTIC = 38.14 ( 10 DF)  
PROBABILITY LEVEL = 0.001

LINEAR ATTRIBUTION ESTIMATE OF SELECTED MODEL

-----  
LN(LOAD) = + 4.0173E+00 + 8.5143E-01 LN(FLOW)

ESTIMATED RESIDUAL VARIANCE = 0.266

LEAST ABSOLUTE DEVIATION ESTIMATE OF SELECTED MODEL

-----  
LN(LOAD) = + 4.0392E+00 + 7.2752E-01 LN(FLOW)

STATION:  
STATION NUMBER: EUC10

LOADS ESTIMATED BY RATING CURVE METHOD (MAXIMUM LIKELIHOOD PARAM. EST.)

-----  
AVERAGE LOAD (LBS/DAY) ANNUAL SPRING SUMMER FALL WINTER  
STD DEV LOAD (LBS/DAY) 100. 130. 110. 51. 110.  
11. 14. 16. 3. 12.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.12 0.23 0.25 0.27 0.28 0.29 0.31 0.33

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
12. 41. 65. 100. 180. 300. 710. 3100.

LOADS ESTIMATED BY RATING CURVE METHOD (LINEAR ATTRIBUTION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	98.	130.	110.	49.	110.
STD DEV LOAD (LBS/DAY)	8.	9.	12.	2.	9.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)							
MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.12	0.22	0.24	0.26	0.27	0.28	0.29	0.32

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)							
MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
11.	39.	62.	96.	170.	290.	690.	3200.

LOADS ESTIMATED BY RATING CURVE METHOD (LEAST ABSOLUTE DEVIATION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	87.	110.	89.	49.	97.
STD DEV LOAD (LBS/DAY)	9.	12.	13.	2.	10.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)							
MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.068	0.210	0.240	0.280	0.310	0.330	0.360	0.410

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)							
MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
15.	42.	63.	91.	150.	230.	490.	1800.

LOAD ESTIMATED BY BEALE RATIO ESTIMATOR

AVERAGE ANNUAL LOAD (LBS/DAY): 100.

## EUC11 Total Phos Model #6

STATION NAME:  
STATION NUMBER: EUC11  
DRAINAGE AREA: 65.9 SQUARE MILES

CONSTITUENT: TOTAL Phos  
LOAD ESTIMATES FOR 19980101 TO 20020315  
TOTAL NUMBER OF OBS.: 68 NUMBER OF UNCENSORED OBS.: 68  
CALIBRATION DATA PERIOD OF RECORD: 1998 TO 2002

CALIBRATION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
44. 0. 2. 4. 7. 21. 49. 1818.

PREDICTION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
20. 0. 2. 3. 7. 18. 39. 1818.

RATING-CURVE MODEL SELECTED BY USER

LOG STREAMFLOW ADJUSTMENT: -1.9786

DECIMAL TIME ADJUSTMENT : -1998.0

MAXIMUM LIKELIHOOD ESTIMATE OF SELECTED MODEL

LN(LOAD) = + 8.7058E-01 + 1.2672E+00 LN(FLOW) + 3.1662E-02 LN(FLOW)\*\*2  
- 1.8172E-01 SIN(DECTIME) - 3.4607E-01 COS(DECTIME)

ESTIMATED RESIDUAL VARIANCE = 0.312

TURNBULL-WEISS LIKELIHOOD RATIO NORMALITY TEST STATISTIC = 32.04 ( 10 DF)  
PROBABILITY LEVEL = 0.001

LINEAR ATTRIBUTION ESTIMATE OF SELECTED MODEL

LN(LOAD) = + 8.7058E-01 + 1.2672E+00 LN(FLOW) + 3.1662E-02 LN(FLOW)\*\*2  
- 1.8172E-01 SIN(DECTIME) - 3.4607E-01 COS(DECTIME)

ESTIMATED RESIDUAL VARIANCE = 0.312

LEAST ABSOLUTE DEVIATION ESTIMATE OF SELECTED MODEL

LN(LOAD) = + 8.0992E-01 + 1.2273E+00 LN(FLOW) + 3.1600E-02 LN(FLOW)\*\*2  
- 2.0578E-01 SIN(DECTIME) - 3.2508E-01 COS(DECTIME)

STATION:

STATION NUMBER: EUC11

LOADS ESTIMATED BY RATING CURVE METHOD (MAXIMUM LIKELIHOOD PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	24.	19.	47.	9.	21.
STD DEV LOAD (LBS/DAY)	6.	3.	17.	3.	6.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.039 0.059 0.069 0.092 0.120 0.150 0.270 1.100

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.01 1.10 2.60 7.70 24.00 57.00 290.00 10000.00

LOADS ESTIMATED BY RATING CURVE METHOD (LINEAR ATTRIBUTION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	27.	21.	54.	11.	24.
STD DEV LOAD (LBS/DAY)	10.	5.	25.	4.	8.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.043 0.065 0.076 0.100 0.130 0.170 0.300 1.300

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.01 1.20 2.90 8.40 26.00 63.00 330.00 12000.00

LOADS ESTIMATED BY RATING CURVE METHOD (LEAST ABSOLUTE DEVIATION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	24.	19.	46.	10.	21.
STD DEV LOAD (LBS/DAY)	6.	4.	14.	2.	6.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.046 0.068 0.080 0.100 0.130 0.150 0.270 1.000

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.017 1.300 2.900 8.200 25.000 57.000 290.000 9900.000

LOAD ESTIMATED BY BEALE RATIO ESTIMATOR

AVERAGE ANNUAL LOAD (LBS/DAY): 63.

### EUC12 Total Phos Model #3

STATION NAME:  
STATION NUMBER: EUC12  
DRAINAGE AREA: 64.3 SQUARE MILES

CONSTITUENT: TOTAL Phos  
LOAD ESTIMATES FOR 19980101 TO 20020315  
TOTAL NUMBER OF OBS.: 13 NUMBER OF UNCENSORED OBS.: 13  
CALIBRATION DATA PERIOD OF RECORD: 1998 TO 2001

CALIBRATION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
41. 13. 15. 21. 39. 56. 74. 76.

PREDICTION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
22. 2. 5. 7. 12. 20. 41. 585.

WARNING: THE RATIO OF LARGEST PREDICTION DATA SET STEAMFLOW AND LARGEST CALIBRATION DATA SET STREAMFLOW EXCEEDS 2.0

RATING-CURVE MODEL SELECTED BY USER

LOG STREAMFLOW ADJUSTMENT: -3.6710

DECIMAL TIME ADJUSTMENT : -1998.0

MAXIMUM LIKELIHOOD ESTIMATE OF SELECTED MODEL

LN(LOAD) = + 2.6528E+00 + 1.2770E+00 LN(FLOW) - 3.5382E-01 DECTIME

ESTIMATED RESIDUAL VARIANCE = 0.236

TURNBULL-WEISS LIKELIHOOD RATIO NORMALITY TEST STATISTIC = 4.04 ( 1 DF)  
PROBABILITY LEVEL = 0.044

LINEAR ATTRIBUTION ESTIMATE OF SELECTED MODEL

LN(LOAD) = + 2.6528E+00 + 1.2770E+00 LN(FLOW) - 3.5382E-01 DECTIME

ESTIMATED RESIDUAL VARIANCE = 0.236

LEAST ABSOLUTE DEVIATION ESTIMATE OF SELECTED MODEL

LN(LOAD) = + 2.4950E+00 + 1.0975E+00 LN(FLOW) - 3.5084E-01 DECTIME

STATION:

STATION NUMBER: EUC12

LOADS ESTIMATED BY RATING CURVE METHOD (MAXIMUM LIKELIHOOD PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	4.90	6.80	5.80	1.40	5.50
STD DEV LOAD (LBS/DAY)	1.30	1.40	2.60	0.33	1.50

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.007 0.016 0.022 0.037 0.052 0.059 0.079 0.110

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.11 0.67 1.30 3.80 9.50 17.00 76.00 230.00

LOADS ESTIMATED BY RATING CURVE METHOD (LINEAR ATTRIBUTION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	5.30	7.00	6.50	1.50	5.90
STD DEV LOAD (LBS/DAY)	1.50	1.70	2.80	0.28	1.80
PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)					
MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT
0.010	0.018	0.024	0.039	0.053	0.061
PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)					
MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT
0.15	0.74	1.40	3.90	9.60	17.00
MAXIMUM					
0.140					
84.00					
MAXIMUM					
290.00					

LOADS ESTIMATED BY RATING CURVE METHOD (LEAST ABSOLUTE DEVIATION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	4.90	6.70	5.40	1.70	5.40
STD DEV LOAD (LBS/DAY)	0.78	1.10	0.90	0.32	0.88
PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)					
MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT
0.015	0.022	0.031	0.047	0.057	0.065
PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)					
MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT
0.24	1.00	1.80	4.40	9.70	16.00
MAXIMUM					
180.00					

LOAD ESTIMATED BY BEALE RATIO ESTIMATOR

AVERAGE ANNUAL LOAD (LBS/DAY): 5.3

## SPA06 Total Phos Model #6

STATION NAME:  
STATION NUMBER: SPA06  
DRAINAGE AREA: 15.6 SQUARE MILES

CONSTITUENT: TOTAL Phos  
LOAD ESTIMATES FOR 19980101 TO 20020315  
TOTAL NUMBER OF OBS.: 74 NUMBER OF UNCENSORED OBS.: 74  
CALIBRATION DATA PERIOD OF RECORD: 1998 TO 2001

CALIBRATION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
31. 0. 0. 0. 6. 29. 112. 112.

PREDICTION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
3. 0. 0. 0. 1. 3. 8. 112.

RATING-CURVE MODEL SELECTED BY USER

LOG STREAMFLOW ADJUSTMENT: -1.7047

DECIMAL TIME ADJUSTMENT : -1998.0

MAXIMUM LIKELIHOOD ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \ln(\text{LOAD}) = & -1.3827E-01 + 1.1615E+00 \ln(\text{FLOW}) + 2.4116E-02 \ln(\text{FLOW})^{**2} \\ & - 2.0905E-01 \sin(\text{DECTIME}) + 5.6579E-02 \cos(\text{DECTIME}) \end{aligned}$$

ESTIMATED RESIDUAL VARIANCE = 0.323

TURNBULL-WEISS LIKELIHOOD RATIO NORMALITY TEST STATISTIC = 31.05 ( 11 DF)  
PROBABILITY LEVEL = 0.001

LINEAR ATTRIBUTION ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \ln(\text{LOAD}) = & -1.3827E-01 + 1.1615E+00 \ln(\text{FLOW}) + 2.4116E-02 \ln(\text{FLOW})^{**2} \\ & - 2.0905E-01 \sin(\text{DECTIME}) + 5.6579E-02 \cos(\text{DECTIME}) \end{aligned}$$

ESTIMATED RESIDUAL VARIANCE = 0.323

LEAST ABSOLUTE DEVIATION ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \ln(\text{LOAD}) = & -2.6548E-01 + 1.1165E+00 \ln(\text{FLOW}) + 2.2769E-02 \ln(\text{FLOW})^{**2} \\ & - 2.1579E-01 \sin(\text{DECTIME}) + 4.6285E-02 \cos(\text{DECTIME}) \end{aligned}$$

STATION:

STATION NUMBER: SPA06

LOADS ESTIMATED BY RATING CURVE METHOD (MAXIMUM LIKELIHOOD PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	0.69	1.00	0.64	0.37	0.71
STD DEV LOAD (LBS/DAY)	0.06	0.11	0.09	0.06	0.09

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.021 0.028 0.031 0.036 0.039 0.039 0.050 0.070

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.001 0.002 0.110 0.510 1.500 3.100 10.000 39.000

LOADS ESTIMATED BY RATING CURVE METHOD (LINEAR ATTRIBUTION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	0.72	1.10	0.66	0.38	0.74
STD DEV LOAD (LBS/DAY)	0.09	0.15	0.09	0.07	0.11

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.022 0.029 0.033 0.038 0.041 0.042 0.052 0.073

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.002 0.002 0.110 0.530 1.500 3.300 11.000 41.000

LOADS ESTIMATED BY RATING CURVE METHOD (LEAST ABSOLUTE DEVIATION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	0.69	1.00	0.65	0.37	0.70
STD DEV LOAD (LBS/DAY)	0.09	0.19	0.14	0.09	0.10

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.025 0.031 0.037 0.046 0.052 0.053 0.053 0.065

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.002 0.003 0.130 0.550 1.500 3.100 9.900 35.000

LOAD ESTIMATED BY BEALE RATIO ESTIMATOR

AVERAGE ANNUAL LOAD (LBS/DAY): 1.2

## EUC04 Dissolved Phos Model #8

STATION NAME:  
STATION NUMBER: EUC04  
DRAINAGE AREA: 20.9 SQUARE MILES

CONSTITUENT: SOLUBLE Phos  
LOAD ESTIMATES FOR 19980101 TO 20020315  
TOTAL NUMBER OF OBS.: 29 NUMBER OF UNCENSORED OBS.: 25  
CALIBRATION DATA PERIOD OF RECORD: 1998 TO 2002

CALIBRATION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
11. 1. 2. 4. 7. 11. 26. 79.

PREDICTION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
6. 0. 1. 1. 2. 5. 12. 412.

WARNING: THE RATIO OF LARGEST PREDICTION DATA SET STREAMFLOW AND LARGEST CALIBRATION DATA SET STREAMFLOW EXCEEDS 2.0

RATING-CURVE MODEL SELECTED BY USER

LOG STREAMFLOW ADJUSTMENT: -1.9344

DECIMAL TIME ADJUSTMENT : -1998.0

MAXIMUM LIKELIHOOD ESTIMATE OF SELECTED MODEL

-----  
 $\text{LN(LOAD)} = -1.1065\text{E+00} + 9.7872\text{E-01} \text{LN(FLOW)} + 2.1885\text{E-01} \text{LN(FLOW)}^{**2}$   
- 2.9506E-01 SIN(DECTIME) - 2.6990E-01 COS(DECTIME)  
- 6.8116E-02 DECTIME

ESTIMATED RESIDUAL VARIANCE = 0.247

TURNBULL-WEISS LIKELIHOOD RATIO NORMALITY TEST STATISTIC = 6.34 ( 2 DF)  
PROBABILITY LEVEL = 0.042

LINEAR ATTRIBUTION ESTIMATE OF SELECTED MODEL

-----  
 $\text{LN(LOAD)} = -1.1605\text{E+00} + 9.6800\text{E-01} \text{LN(FLOW)} + 2.2003\text{E-01} \text{LN(FLOW)}^{**2}$   
- 2.8032E-01 SIN(DECTIME) - 2.4155E-01 COS(DECTIME)  
- 2.1903E-02 DECTIME

ESTIMATED RESIDUAL VARIANCE = 0.253

LEAST ABSOLUTE DEVIATION ESTIMATE OF SELECTED MODEL

-----  
 $\text{LN(LOAD)} = -1.2717\text{E+00} + 1.1710\text{E+00} \text{LN(FLOW)} + 6.1542\text{E-02} \text{LN(FLOW)}^{**2}$   
- 1.5370E-01 SIN(DECTIME) - 1.2273E-01 COS(DECTIME)  
+ 1.3537E-01 DECTIME

WARNING: ONE OF THE MAXIMUM PREDICTED CONCENTRATIONS EXCEEDS TWICE THE MAXIMUM OBSERVED SAMPLE CONCENTRATION OF 0.044 MG/L

STATION:  
STATION NUMBER: EUC04

LOADS ESTIMATED BY RATING CURVE METHOD (MAXIMUM LIKELIHOOD PARAM. EST.)

-----  
AVERAGE LOAD (LBS/DAY) ANNUAL SPRING SUMMER FALL WINTER  
STD DEV LOAD (LBS/DAY) 0.67 0.49 0.60 0.73 0.84  
190.00 0.10 0.29 810.00 2.30

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 -0.006 0.008 0.011 0.021 0.037 0.061 0.130 0.170

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 -0.001 0.100 0.140 0.230 0.530 1.200 7.200 180.000

LOADS ESTIMATED BY RATING CURVE METHOD (LINEAR ATTRIBUTION PARAM. EST.)

AVERAGE LOAD (LBS/DAY)	ANNUAL	SPRING	SUMMER	FALL	WINTER
	0.99	0.51	0.67	1.10	1.60
STD DEV LOAD (LBS/DAY)	6.70	0.25	0.83	14.00	11.00

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.006 0.009 0.012 0.024 0.049 0.120 1.200 200.000

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.080 0.130 0.170 0.270 0.620 1.400 8.000 470.000

LOADS ESTIMATED BY RATING CURVE METHOD (LEAST ABSOLUTE DEVIATION PARAM. EST.)

AVERAGE LOAD (LBS/DAY)	ANNUAL	SPRING	SUMMER	FALL	WINTER
	0.63	0.62	0.56	0.39	0.89
STD DEV LOAD (LBS/DAY)	0.48	0.20	0.24	0.41	1.10

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.008 0.010 0.013 0.015 0.018 0.021 0.032 0.069

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.003 0.076 0.140 0.310 0.810 1.800 7.500 150.000

LOAD ESTIMATED BY BEALE RATIO ESTIMATOR

AVERAGE ANNUAL LOAD (LBS/DAY): 3.9E-01 - 4.1E-01

## EUC05 Dissolved Phos Model #8

STATION NAME:  
STATION NUMBER: EUC05  
DRAINAGE AREA: 87.0 SQUARE MILES

CONSTITUENT: SOLUBLE Phos  
LOAD ESTIMATES FOR 19980101 TO 20020315  
TOTAL NUMBER OF OBS.: 36 NUMBER OF UNCENSORED OBS.: 32  
CALIBRATION DATA PERIOD OF RECORD: 1998 TO 2002

CALIBRATION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
41. 5. 8. 11. 20. 43. 97. 362.

PREDICTION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
26. 0. 2. 5. 9. 23. 51. 1556.

WARNING: THE RATIO OF LARGEST PREDICTION DATA SET STREAMFLOW AND LARGEST CALIBRATION DATA SET STREAMFLOW EXCEEDS 2.0

RATING-CURVE MODEL SELECTED BY USER

LOG STREAMFLOW ADJUSTMENT: -2.9732

DECIMAL TIME ADJUSTMENT : -1998.0

MAXIMUM LIKELIHOOD ESTIMATE OF SELECTED MODEL

-----  
 $\text{LN(LOAD)} = + 2.2193E-01 + 1.1061E+00 \text{ LN(FLOW)} + 1.6501E-01 \text{ LN(FLOW)}^{**2}$   
+ 9.0897E-02 SIN(DECTIME) - 1.6486E-02 COS(DECTIME)  
- 1.4637E-01 DECTIME

ESTIMATED RESIDUAL VARIANCE = 0.075

TURNBULL-WEISS LIKELIHOOD RATIO NORMALITY TEST STATISTIC = 8.51 ( 4 DF)  
PROBABILITY LEVEL = 0.075

LINEAR ATTRIBUTION ESTIMATE OF SELECTED MODEL

-----  
 $\text{LN(LOAD)} = + 1.8930E-01 + 1.0665E+00 \text{ LN(FLOW)} + 1.8118E-01 \text{ LN(FLOW)}^{**2}$   
+ 1.0507E-01 SIN(DECTIME) - 1.5919E-02 COS(DECTIME)  
- 1.2368E-01 DECTIME

ESTIMATED RESIDUAL VARIANCE = 0.075

LEAST ABSOLUTE DEVIATION ESTIMATE OF SELECTED MODEL

-----  
 $\text{LN(LOAD)} = + 5.2835E-02 + 1.0705E+00 \text{ LN(FLOW)} + 2.0720E-01 \text{ LN(FLOW)}^{**2}$   
+ 1.3191E-02 SIN(DECTIME) - 6.9546E-03 COS(DECTIME)  
- 3.0034E-02 DECTIME

WARNING: ONE OF THE MAXIMUM PREDICTED CONCENTRATIONS EXCEEDS TWICE THE MAXIMUM OBSERVED SAMPLE CONCENTRATION OF 0.035 MG/L

STATION:  
STATION NUMBER: EUC05

LOADS ESTIMATED BY RATING CURVE METHOD (MAXIMUM LIKELIHOOD PARAM. EST.)

-----  
AVERAGE LOAD (LBS/DAY) ANNUAL SPRING SUMMER FALL WINTER  
STD DEV LOAD (LBS/DAY) 5.90 4.20 5.80 4.40 8.90  
2.50 0.51 2.50 2.40 4.60

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.006 0.009 0.011 0.013 0.018 0.030 0.086 0.340

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.078 0.230 0.450 1.400 3.800 9.000 65.000 2200.000

LOADS ESTIMATED BY RATING CURVE METHOD (LINEAR ATTRIBUTION PARAM. EST.)  
-----

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	7.	4.	7.	5.	11.
STD DEV LOAD (LBS/DAY)	4.	1.	4.	4.	7.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.007 0.010 0.011 0.013 0.020 0.038 0.180 2.900

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.15 0.27 0.48 1.40 3.70 8.90 70.00 3100.00

LOADS ESTIMATED BY RATING CURVE METHOD (LEAST ABSOLUTE DEVIATION PARAM. EST.)  
-----

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	10.	4.	10.	8.	18.
STD DEV LOAD (LBS/DAY)	13.	3.	12.	11.	24.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.009 0.010 0.011 0.016 0.025 0.054 0.290 6.800

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.24 0.34 0.52 1.30 3.60 9.40 86.00 5700.00

LOAD ESTIMATED BY BEALE RATIO ESTIMATOR  
-----

AVERAGE ANNUAL LOAD (LBS/DAY): 4.2

## EUC06 Dissolved Phos Model #8

STATION NAME:  
STATION NUMBER: EUC06  
DRAINAGE AREA: 152.8 SQUARE MILES

CONSTITUENT: SOLUBLE Phos  
LOAD ESTIMATES FOR 19980101 TO 20020315  
TOTAL NUMBER OF OBS.: 137 NUMBER OF UNCENSORED OBS.: 137  
CALIBRATION DATA PERIOD OF RECORD: 1998 TO 2002

CALIBRATION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
63. 0. 5. 11. 20. 61. 113. 1800.

PREDICTION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
50. 0. 5. 10. 20. 47. 103. 3170.

RATING-CURVE MODEL SELECTED BY USER

LOG STREAMFLOW ADJUSTMENT: -2.9957

DECIMAL TIME ADJUSTMENT : -1998.0

MAXIMUM LIKELIHOOD ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \ln(\text{LOAD}) = & + 1.2946\text{E+00} + 1.1962\text{E+00} \ln(\text{FLOW}) + 3.8992\text{E-02} \ln(\text{FLOW})^{**2} \\ & - 2.2899\text{E-01} \sin(\text{DECTIME}) - 1.6635\text{E-01} \cos(\text{DECTIME}) \\ & + 5.1501\text{E-02} \text{DECTIME} \end{aligned}$$

ESTIMATED RESIDUAL VARIANCE = 0.059

TURNBULL-WEISS LIKELIHOOD RATIO NORMALITY TEST STATISTIC = 72.18 ( 24 DF)  
PROBABILITY LEVEL = 0.001

LINEAR ATTRIBUTION ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \ln(\text{LOAD}) = & + 1.2946\text{E+00} + 1.1962\text{E+00} \ln(\text{FLOW}) + 3.8992\text{E-02} \ln(\text{FLOW})^{**2} \\ & - 2.2899\text{E-01} \sin(\text{DECTIME}) - 1.6635\text{E-01} \cos(\text{DECTIME}) \\ & + 5.1501\text{E-02} \text{DECTIME} \end{aligned}$$

ESTIMATED RESIDUAL VARIANCE = 0.059

LEAST ABSOLUTE DEVIATION ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \ln(\text{LOAD}) = & + 1.3319\text{E+00} + 1.1734\text{E+00} \ln(\text{FLOW}) + 4.4384\text{E-02} \ln(\text{FLOW})^{**2} \\ & - 1.9617\text{E-01} \sin(\text{DECTIME}) - 1.3670\text{E-01} \cos(\text{DECTIME}) \\ & + 3.1677\text{E-02} \text{DECTIME} \end{aligned}$$

STATION:  
STATION NUMBER: EUC06

LOADS ESTIMATED BY RATING CURVE METHOD (MAXIMUM LIKELIHOOD PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	22.	20.	29.	12.	25.
STD DEV LOAD (LBS/DAY)	2.	1.	3.	1.	2.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.026 0.035 0.040 0.044 0.054 0.067 0.098 0.310

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.031 1.900 3.900 9.900 29.000 60.000 240.000 4900.000

LOADS ESTIMATED BY RATING CURVE METHOD (LINEAR ATTRIBUTION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	22.	20.	29.	12.	25.
STD DEV LOAD (LBS/DAY)	3.	1.	5.	2.	3.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.026 0.035 0.040 0.044 0.054 0.066 0.098 0.310

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.031 1.900 3.900 9.900 29.000 60.000 240.000 5000.000

LOADS ESTIMATED BY RATING CURVE METHOD (LEAST ABSOLUTE DEVIATION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	22.	21.	29.	12.	26.
STD DEV LOAD (LBS/DAY)	10.	6.	16.	5.	14.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.028 0.036 0.040 0.044 0.054 0.065 0.097 0.310

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.040 1.900 3.900 10.000 29.000 59.000 230.000 5000.000

LOAD ESTIMATED BY BEALE RATIO ESTIMATOR

AVERAGE ANNUAL LOAD (LBS/DAY) : 37.

## EUC07 Dissolved Phos Model #4

STATION NAME:  
STATION NUMBER: EUC07  
DRAINAGE AREA: 50.6 SQUARE MILES

CONSTITUENT: SOLUBLE Phos  
LOAD ESTIMATES FOR 19980101 TO 20020315  
TOTAL NUMBER OF OBS.: 46 NUMBER OF UNCENSORED OBS.: 38  
CALIBRATION DATA PERIOD OF RECORD: 1998 TO 2002

CALIBRATION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
17. 2. 3. 5. 8. 20. 40. 186.

PREDICTION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
15. 0. 1. 3. 5. 13. 29. 967.

WARNING: THE RATIO OF LARGEST PREDICTION DATA SET STREAMFLOW AND LARGEST CALIBRATION DATA SET STREAMFLOW EXCEEDS 2.0

RATING-CURVE MODEL SELECTED BY USER

LOG STREAMFLOW ADJUSTMENT: -2.1111

DECIMAL TIME ADJUSTMENT : -1998.0

MAXIMUM LIKELIHOOD ESTIMATE OF SELECTED MODEL

-----  
 $\text{LN(LOAD)} = -7.8224\text{E}-01 + 1.1004\text{E}+00 \text{LN(FLOW)} - 2.2446\text{E}-01 \text{SIN(DECTIME)}$   
- 8.4613E-02 COS(DECTIME)

ESTIMATED RESIDUAL VARIANCE = 0.103

TURNBULL-WEISS LIKELIHOOD RATIO NORMALITY TEST STATISTIC = 23.20 ( 6 DF)  
PROBABILITY LEVEL = 0.001

LINEAR ATTRIBUTION ESTIMATE OF SELECTED MODEL

-----  
 $\text{LN(LOAD)} = -7.4245\text{E}-01 + 1.0720\text{E}+00 \text{LN(FLOW)} - 1.5810\text{E}-01 \text{SIN(DECTIME)}$   
- 5.4738E-02 COS(DECTIME)

ESTIMATED RESIDUAL VARIANCE = 0.104

LEAST ABSOLUTE DEVIATION ESTIMATE OF SELECTED MODEL

-----  
 $\text{LN(LOAD)} = -8.0874\text{E}-01 + 1.0000\text{E}+00 \text{LN(FLOW)} - 6.4233\text{E}-08 \text{SIN(DECTIME)}$   
- 1.5482E-07 COS(DECTIME)

STATION:  
STATION NUMBER: EUC07

LOADS ESTIMATED BY RATING CURVE METHOD (MAXIMUM LIKELIHOOD PARAM. EST.)

-----  
AVERAGE LOAD (LBS/DAY) ANNUAL SPRING SUMMER FALL WINTER  
0.96 1.10 0.91 0.65 1.10  
STD DEV LOAD (LBS/DAY) 0.10 0.10 0.11 0.12 0.14

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.007 0.009 0.010 0.011 0.012 0.013 0.015 0.020

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.001 0.140 0.280 0.710 1.700 3.400 11.000 88.000

LOADS ESTIMATED BY RATING CURVE METHOD (LINEAR ATTRIBUTION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	0.99	1.20	0.90	0.63	1.20
STD DEV LOAD (LBS/DAY)	0.15	0.11	0.17	0.18	0.17

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.009 0.010 0.011 0.012 0.013 0.013 0.015 0.019

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.002 0.160 0.310 0.780 1.800 3.500 11.000 81.000

LOADS ESTIMATED BY RATING CURVE METHOD (LEAST ABSOLUTE DEVIATION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	0.95	1.30	0.79	0.49	1.20
STD DEV LOAD (LBS/DAY)	0.11	0.15	0.09	0.06	0.14

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.012 0.012 0.012 0.012 0.012 0.012 0.012 0.012

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.002 0.170 0.350 0.840 1.900 3.500 9.600 62.000

LOAD ESTIMATED BY BEALE RATIO ESTIMATOR

AVERAGE ANNUAL LOAD (LBS/DAY): 9.7E-01 - 11.0

## EUC08 Dissolved Phos Model #8

STATION NAME:  
STATION NUMBER: EUC08  
DRAINAGE AREA: 516.9 SQUARE MILES

CONSTITUENT: SOLUBLE Phos  
LOAD ESTIMATES FOR 19980101 TO 20020315  
TOTAL NUMBER OF OBS.: 134 NUMBER OF UNCENSORED OBS.: 134  
CALIBRATION DATA PERIOD OF RECORD: 1998 TO 2002

CALIBRATION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
143. 13. 29. 54. 92. 168. 329. 1010.

PREDICTION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
182. 13. 38. 55. 92. 159. 317. 7275.

WARNING: THE RATIO OF LARGEST PREDICTION DATA SET STREAMFLOW AND LARGEST CALIBRATION DATA SET STREAMFLOW EXCEEDS 2.0

RATING-CURVE MODEL SELECTED BY USER

LOG STREAMFLOW ADJUSTMENT: -4.5218

DECIMAL TIME ADJUSTMENT : -1998.0

MAXIMUM LIKELIHOOD ESTIMATE OF SELECTED MODEL

-----  
 $\text{LN(LOAD)} = + 3.0313\text{E+00} + 1.3179\text{E+00} \text{LN(FLOW)} + 3.1986\text{E-02} \text{LN(FLOW)}^{**2}$   
- 1.0453E-01 SIN(DECTIME) - 6.8206E-02 COS(DECTIME)  
- 3.1530E-02 DECTIME

ESTIMATED RESIDUAL VARIANCE = 0.039

TURNBULL-WEISS LIKELIHOOD RATIO NORMALITY TEST STATISTIC = 67.41 ( 23 DF)  
PROBABILITY LEVEL = 0.001

LINEAR ATTRIBUTION ESTIMATE OF SELECTED MODEL

-----  
 $\text{LN(LOAD)} = + 3.0313\text{E+00} + 1.3179\text{E+00} \text{LN(FLOW)} + 3.1986\text{E-02} \text{LN(FLOW)}^{**2}$   
- 1.0453E-01 SIN(DECTIME) - 6.8206E-02 COS(DECTIME)  
- 3.1530E-02 DECTIME

ESTIMATED RESIDUAL VARIANCE = 0.039

LEAST ABSOLUTE DEVIATION ESTIMATE OF SELECTED MODEL

-----  
 $\text{LN(LOAD)} = + 3.0453\text{E+00} + 1.3074\text{E+00} \text{LN(FLOW)} + 1.9651\text{E-02} \text{LN(FLOW)}^{**2}$   
- 7.9302E-02 SIN(DECTIME) - 2.0919E-02 COS(DECTIME)  
- 2.4483E-02 DECTIME

WARNING: ONE OF THE MAXIMUM PREDICTED CONCENTRATIONS EXCEEDS TWICE THE MAXIMUM OBSERVED SAMPLE CONCENTRATION OF 0.045 MG/L

STATION:  
STATION NUMBER: EUC08

LOADS ESTIMATED BY RATING CURVE METHOD (MAXIMUM LIKELIHOOD PARAM. EST.)

-----  
AVERAGE LOAD (LBS/DAY) ANNUAL SPRING SUMMER FALL WINTER  
STD DEV LOAD (LBS/DAY) 85. 81. 150. 22. 89.  
11. 5. 28. 1. 11.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.028 0.034 0.039 0.046 0.061 0.076 0.140 0.300

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
2. 10. 19. 40. 100. 230. 1200. 11000.

LOADS ESTIMATED BY RATING CURVE METHOD (LINEAR ATTRIBUTION PARAM. EST.)

AVERAGE LOAD (LBS/DAY)	ANNUAL	SPRING	SUMMER	FALL	WINTER
STD DEV LOAD (LBS/DAY)	86.	81.	150.	22.	90.
	8.	3.	22.	1.	9.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.028 0.034 0.039 0.046 0.060 0.076 0.140 0.310

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
2. 10. 19. 39. 100. 230. 1200. 12000.

LOADS ESTIMATED BY RATING CURVE METHOD (LEAST ABSOLUTE DEVIATION PARAM. EST.)

AVERAGE LOAD (LBS/DAY)	ANNUAL	SPRING	SUMMER	FALL	WINTER
STD DEV LOAD (LBS/DAY)	77.	78.	120.	21.	86.
	37.	19.	89.	2.	39.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.027 0.035 0.040 0.047 0.059 0.074 0.120 0.230

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
2. 10. 20. 40. 100. 230. 1100. 8800.

LOAD ESTIMATED BY BEALE RATIO ESTIMATOR

AVERAGE ANNUAL LOAD (LBS/DAY): 55.

## EUC09 Dissolved Phos Model #8

STATION NAME:  
STATION NUMBER: EUC09  
DRAINAGE AREA: 423.5 SQUARE MILES

CONSTITUENT: SOLUBLE Phos  
LOAD ESTIMATES FOR 19980101 TO 20020315  
TOTAL NUMBER OF OBS.: 71 NUMBER OF UNCENSORED OBS.: 71  
CALIBRATION DATA PERIOD OF RECORD: 1998 TO 2002

CALIBRATION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
165. 11. 32. 47. 80. 150. 360. 1194.

PREDICTION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
148. 10. 31. 45. 77. 131. 259. 6469.

WARNING: THE RATIO OF LARGEST PREDICTION DATA SET STEAMFLOW AND LARGEST CALIBRATION DATA SET STREAMFLOW EXCEEDS 2.0

RATING-CURVE MODEL SELECTED BY USER

LOG STREAMFLOW ADJUSTMENT: -4.3813

DECIMAL TIME ADJUSTMENT : -1998.0

MAXIMUM LIKELIHOOD ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \ln(\text{LOAD}) = & + 3.3110E+00 + 1.2856E+00 \ln(\text{FLOW}) + 2.9520E-02 \ln(\text{FLOW})^{**2} \\ & - 4.2894E-02 \sin(\text{DECTIME}) - 1.5655E-01 \cos(\text{DECTIME}) \\ & + 8.8868E-02 \text{DECTIME} \end{aligned}$$

ESTIMATED RESIDUAL VARIANCE = 0.385

TURNBULL-WEISS LIKELIHOOD RATIO NORMALITY TEST STATISTIC = 71.24 ( 11 DF)  
PROBABILITY LEVEL = 0.001

LINEAR ATTRIBUTION ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \ln(\text{LOAD}) = & + 3.3110E+00 + 1.2856E+00 \ln(\text{FLOW}) + 2.9520E-02 \ln(\text{FLOW})^{**2} \\ & - 4.2894E-02 \sin(\text{DECTIME}) - 1.5655E-01 \cos(\text{DECTIME}) \\ & + 8.8868E-02 \text{DECTIME} \end{aligned}$$

ESTIMATED RESIDUAL VARIANCE = 0.385

LEAST ABSOLUTE DEVIATION ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \ln(\text{LOAD}) = & + 3.5796E+00 + 1.1046E+00 \ln(\text{FLOW}) + 6.3932E-03 \ln(\text{FLOW})^{**2} \\ & - 4.9421E-02 \sin(\text{DECTIME}) + 1.7005E-02 \cos(\text{DECTIME}) \\ & + 3.5216E-02 \text{DECTIME} \end{aligned}$$

STATION:  
STATION NUMBER: EUC09

LOADS ESTIMATED BY RATING CURVE METHOD (MAXIMUM LIKELIHOOD PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	130.	140.	220.	34.	130.
STD DEV LOAD (LBS/DAY)	61.	24.	180.	5.	54.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.053 0.078 0.089 0.110 0.130 0.160 0.250 0.450

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)

MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
3.	20.	37.	73.	180.	410.	1500.	15000.

LOADS ESTIMATED BY RATING CURVE METHOD (LINEAR ATTRIBUTION PARAM. EST.)

AVERAGE LOAD (LBS/DAY)	ANNUAL	SPRING	SUMMER	FALL	WINTER
STD DEV LOAD (LBS/DAY)	140.	130.	260.	32.	140.
	45.	22.	130.	4.	42.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)

MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.053	0.073	0.084	0.100	0.130	0.150	0.240	0.620

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)

MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
3.	18.	35.	68.	170.	390.	1400.	21000.

LOADS ESTIMATED BY RATING CURVE METHOD (LEAST ABSOLUTE DEVIATION PARAM. EST.)

AVERAGE LOAD (LBS/DAY)	ANNUAL	SPRING	SUMMER	FALL	WINTER
STD DEV LOAD (LBS/DAY)	88.	100.	110.	33.	100.
	20.	13.	45.	3.	24.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)

MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.077	0.089	0.093	0.099	0.110	0.110	0.130	0.160

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)

MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
4.	22.	39.	69.	150.	280.	900.	5600.

LOAD ESTIMATED BY BEALE RATIO ESTIMATOR

AVERAGE ANNUAL LOAD (LBS/DAY): 120.

## EUC10 Dissolved Phos Model #7

STATION NAME:  
STATION NUMBER: EUC10  
DRAINAGE AREA: 268.9 SQUARE MILES

CONSTITUENT: SOLUBLE Phos  
LOAD ESTIMATES FOR 19980101 TO 20020315  
TOTAL NUMBER OF OBS.: 67 NUMBER OF UNCENSORED OBS.: 67  
CALIBRATION DATA PERIOD OF RECORD: 1998 TO 2002

CALIBRATION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
76. 7. 19. 28. 47. 92. 178. 446.

PREDICTION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
94. 7. 20. 28. 49. 82. 161. 4962.

WARNING: THE RATIO OF LARGEST PREDICTION DATA SET STEAMFLOW AND LARGEST CALIBRATION DATA SET STREAMFLOW EXCEEDS 2.0

RATING-CURVE MODEL SELECTED BY USER

LOG STREAMFLOW ADJUSTMENT: -3.8548

DECIMAL TIME ADJUSTMENT : -1998.0

MAXIMUM LIKELIHOOD ESTIMATE OF SELECTED MODEL

LN(LOAD) = + 3.6878E+00 + 9.6971E-01 LN(FLOW) - 8.6374E-02 SIN(DECTIME)  
- 1.7446E-01 COS(DECTIME) + 8.1956E-02 DECTIME

ESTIMATED RESIDUAL VARIANCE = 0.602

TURNBULL-WEISS LIKELIHOOD RATIO NORMALITY TEST STATISTIC = 68.38 ( 10 DF)  
PROBABILITY LEVEL = 0.001

LINEAR ATTRIBUTION ESTIMATE OF SELECTED MODEL

LN(LOAD) = + 3.6878E+00 + 9.6971E-01 LN(FLOW) - 8.6374E-02 SIN(DECTIME)  
- 1.7446E-01 COS(DECTIME) + 8.1956E-02 DECTIME

ESTIMATED RESIDUAL VARIANCE = 0.602

LEAST ABSOLUTE DEVIATION ESTIMATE OF SELECTED MODEL

LN(LOAD) = + 4.0033E+00 + 8.3891E-01 LN(FLOW) - 1.4619E-01 SIN(DECTIME)  
+ 5.5408E-02 COS(DECTIME) + 4.0540E-03 DECTIME

STATION:  
STATION NUMBER: EUC10

LOADS ESTIMATED BY RATING CURVE METHOD (MAXIMUM LIKELIHOOD PARAM. EST.)

AVERAGE LOAD (LBS/DAY)	ANNUAL	SPRING	SUMMER	FALL	WINTER
STD DEV LOAD (LBS/DAY)	110.	140.	150.	52.	110.
	24.	25.	55.	10.	27.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.15 0.21 0.24 0.27 0.31 0.33 0.34 0.35

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
9. 40. 62. 100. 200. 340. 860. 5400.

LOADS ESTIMATED BY RATING CURVE METHOD (LINEAR ATTRIBUTION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	100.	120.	140.	45.	98.
STD DEV LOAD (LBS/DAY)	13.	15.	43.	7.	12.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.14 0.18 0.21 0.24 0.27 0.29 0.30 0.30

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 8. 35. 54. 89. 170. 300. 780. 5600.

LOADS ESTIMATED BY RATING CURVE METHOD (LEAST ABSOLUTE DEVIATION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	87.	100.	92.	52.	100.
STD DEV LOAD (LBS/DAY)	4.	4.	9.	3.	5.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.097 0.180 0.220 0.260 0.290 0.290 0.310 0.340

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 12. 38. 57. 85. 140. 240. 600. 2600.

LOAD ESTIMATED BY BEALE RATIO ESTIMATOR

AVERAGE ANNUAL LOAD (LBS/DAY): 96.

## EUC11 Dissolved Phos Model #8

STATION NAME:  
STATION NUMBER: EUC11  
DRAINAGE AREA: 65.9 SQUARE MILES

CONSTITUENT: SOLUBLE Phos  
LOAD ESTIMATES FOR 19980101 TO 20020315  
TOTAL NUMBER OF OBS.: 68 NUMBER OF UNCENSORED OBS.: 68  
CALIBRATION DATA PERIOD OF RECORD: 1998 TO 1999

CALIBRATION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
44. 0. 2. 4. 7. 21. 49. 1803.

PREDICTION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
20. 0. 2. 3. 7. 18. 39. 1818.

RATING-CURVE MODEL SELECTED BY USER

LOG STREAMFLOW ADJUSTMENT: -1.9768

DECIMAL TIME ADJUSTMENT : -1998.0

MAXIMUM LIKELIHOOD ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \ln(\text{LOAD}) = & + 7.5504\text{E-01} + 1.0620\text{E+00} \ln(\text{FLOW}) - 5.0207\text{E-02} \ln(\text{FLOW})^{**2} \\ & - 1.9085\text{E-02} \sin(\text{DECTIME}) - 2.9102\text{E-01} \cos(\text{DECTIME}) \\ & + 2.1042\text{E-02} \text{DECTIME} \end{aligned}$$

ESTIMATED RESIDUAL VARIANCE = 0.685

TURNBULL-WEISS LIKELIHOOD RATIO NORMALITY TEST STATISTIC = 45.71 ( 10 DF)  
PROBABILITY LEVEL = 0.001

LINEAR ATTRIBUTION ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \ln(\text{LOAD}) = & + 7.5504\text{E-01} + 1.0620\text{E+00} \ln(\text{FLOW}) - 5.0207\text{E-02} \ln(\text{FLOW})^{**2} \\ & - 1.9085\text{E-02} \sin(\text{DECTIME}) - 2.9102\text{E-01} \cos(\text{DECTIME}) \\ & + 2.1042\text{E-02} \text{DECTIME} \end{aligned}$$

ESTIMATED RESIDUAL VARIANCE = 0.685

LEAST ABSOLUTE DEVIATION ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \ln(\text{LOAD}) = & + 4.7927\text{E-01} + 1.2007\text{E+00} \ln(\text{FLOW}) + 2.5278\text{E-02} \ln(\text{FLOW})^{**2} \\ & - 2.3650\text{E-01} \sin(\text{DECTIME}) - 3.1554\text{E-01} \cos(\text{DECTIME}) \\ & + 7.4847\text{E-02} \text{DECTIME} \end{aligned}$$

STATION:  
STATION NUMBER: EUC11

LOADS ESTIMATED BY RATING CURVE METHOD (MAXIMUM LIKELIHOOD PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	7.	10.	8.	3.	6.
STD DEV LOAD (LBS/DAY)	1.	2.	2.	1.	2.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.013 0.060 0.069 0.086 0.099 0.100 0.110 0.110

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.003 1.300 3.100 6.900 16.000 25.000 64.000 250.000

LOADS ESTIMATED BY RATING CURVE METHOD (LINEAR ATTRIBUTION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	8.	11.	9.	3.	7.
STD DEV LOAD (LBS/DAY)	39.	9.	100.	12.	34.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.017 0.065 0.075 0.094 0.110 0.110 0.120 0.120

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.004 1.400 3.300 7.500 17.000 28.000 71.000 330.000

LOADS ESTIMATED BY RATING CURVE METHOD (LEAST ABSOLUTE DEVIATION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	16.	14.	29.	7.	15.
STD DEV LOAD (LBS/DAY)	12.	4.	31.	5.	11.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.040 0.057 0.068 0.081 0.100 0.120 0.190 0.580

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.013 1.100 2.500 6.300 18.000 41.000 190.000 5600.000

LOAD ESTIMATED BY BEALE RATIO ESTIMATOR

AVERAGE ANNUAL LOAD (LBS/DAY): 5.0

## EUC12 Dissolved Phos Model #1

STATION NAME:  
STATION NUMBER: EUC12  
DRAINAGE AREA: 64.3 SQUARE MILES

CONSTITUENT: SOLUBLE Phos  
LOAD ESTIMATES FOR 19980101 TO 20020315  
TOTAL NUMBER OF OBS.: 13 NUMBER OF UNCENSORED OBS.: 13  
CALIBRATION DATA PERIOD OF RECORD: 1998 TO 2001

CALIBRATION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
41. 13. 15. 21. 39. 56. 74. 76.

PREDICTION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
22. 2. 5. 7. 12. 20. 41. 585.

WARNING: THE RATIO OF LARGEST PREDICTION DATA SET STREAMFLOW AND LARGEST CALIBRATION DATA SET STREAMFLOW EXCEEDS 2.0

RATING-CURVE MODEL SELECTED BY USER

LOG STREAMFLOW ADJUSTMENT: -3.6710

MAXIMUM LIKELIHOOD ESTIMATE OF SELECTED MODEL

-----  
 $\ln(\text{LOAD}) = + 1.6253\text{E}+00 + 1.1495\text{E}+00 \ln(\text{FLOW})$

ESTIMATED RESIDUAL VARIANCE = 0.100

TURNBULL-WEISS LIKELIHOOD RATIO NORMALITY TEST STATISTIC = 2.08 ( 1 DF)  
PROBABILITY LEVEL = 0.149

LINEAR ATTRIBUTION ESTIMATE OF SELECTED MODEL

-----  
 $\ln(\text{LOAD}) = + 1.6253\text{E}+00 + 1.1495\text{E}+00 \ln(\text{FLOW})$

ESTIMATED RESIDUAL VARIANCE = 0.100

LEAST ABSOLUTE DEVIATION ESTIMATE OF SELECTED MODEL

-----  
 $\ln(\text{LOAD}) = + 1.5216\text{E}+00 + 1.0378\text{E}+00 \ln(\text{FLOW})$

STATION:

STATION NUMBER: EUC12

LOADS ESTIMATED BY RATING CURVE METHOD (MAXIMUM LIKELIHOOD PARAM. EST.)

-----  
AVERAGE LOAD (LBS/DAY) ANNUAL SPRING SUMMER FALL WINTER  
0.36 3.00 3.70 3.60 1.10 3.30  
STD DEV LOAD (LBS/DAY) 0.36 0.36 0.78 0.19 0.41

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.014 0.019 0.021 0.023 0.025 0.027 0.031 0.034

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.12 0.68 1.30 2.40 5.60 9.60 34.00 110.00

LOADS ESTIMATED BY RATING CURVE METHOD (LINEAR ATTRIBUTION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	3.00	3.70	3.80	1.10	3.40
STD DEV LOAD (LBS/DAY)	0.40	0.39	0.85	0.16	0.45

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)							
MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.015	0.019	0.021	0.023	0.025	0.027	0.032	0.038

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)							
MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.13	0.70	1.30	2.40	5.60	9.60	35.00	120.00

LOADS ESTIMATED BY RATING CURVE METHOD (LEAST ABSOLUTE DEVIATION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	2.90	3.70	3.40	1.20	3.30
STD DEV LOAD (LBS/DAY)	0.46	0.43	1.20	0.47	0.52

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)							
MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.022	0.023	0.024	0.024	0.025	0.025	0.026	0.028

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)							
MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.19	0.85	1.50	2.60	5.50	9.00	29.00	87.00

LOAD ESTIMATED BY BEALE RATIO ESTIMATOR

AVERAGE ANNUAL LOAD (LBS/DAY): 3.1

## SPA06 dissolved Phos Model #6

STATION NAME:  
STATION NUMBER: SPA06  
DRAINAGE AREA: 15.6 SQUARE MILES

CONSTITUENT: SOLUBLE Phos  
LOAD ESTIMATES FOR 19980101 TO 20020315  
TOTAL NUMBER OF OBS.: 51 NUMBER OF UNCENSORED OBS.: 51  
CALIBRATION DATA PERIOD OF RECORD: 1998 TO 2001

CALIBRATION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
9. 0. 0. 0. 3. 16. 27. 96.

PREDICTION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
3. 0. 0. 0. 1. 3. 8. 112.

RATING-CURVE MODEL SELECTED BY USER

LOG STREAMFLOW ADJUSTMENT: -1.0647

DECIMAL TIME ADJUSTMENT : -1998.0

MAXIMUM LIKELIHOOD ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \ln(\text{LOAD}) = & -1.4232E+00 + 9.0971E-01 \ln(\text{FLOW}) - 6.0481E-02 \ln(\text{FLOW})^{**2} \\ & - 8.3721E-01 \sin(\text{DECTIME}) + 2.9425E-01 \cos(\text{DECTIME}) \end{aligned}$$

ESTIMATED RESIDUAL VARIANCE = 0.909

TURNBULL-WEISS LIKELIHOOD RATIO NORMALITY TEST STATISTIC = 28.59 ( 7 DF)  
PROBABILITY LEVEL = 0.001

LINEAR ATTRIBUTION ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \ln(\text{LOAD}) = & -1.4232E+00 + 9.0971E-01 \ln(\text{FLOW}) - 6.0481E-02 \ln(\text{FLOW})^{**2} \\ & - 8.3721E-01 \sin(\text{DECTIME}) + 2.9425E-01 \cos(\text{DECTIME}) \end{aligned}$$

ESTIMATED RESIDUAL VARIANCE = 0.909

LEAST ABSOLUTE DEVIATION ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \ln(\text{LOAD}) = & -1.2565E+00 + 1.0937E+00 \ln(\text{FLOW}) - 5.7619E-02 \ln(\text{FLOW})^{**2} \\ & - 2.3024E-01 \sin(\text{DECTIME}) + 7.9629E-02 \cos(\text{DECTIME}) \end{aligned}$$

STATION:  
STATION NUMBER: SPA06

LOADS ESTIMATED BY RATING CURVE METHOD (MAXIMUM LIKELIHOOD PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	0.25	0.23	0.22	0.30	0.26
STD DEV LOAD (LBS/DAY)	0.06	0.06	0.06	0.10	0.10

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.002 0.008 0.011 0.018 0.040 0.051 0.056 0.058

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.000 0.000 0.096 0.290 0.640 0.970 2.600 6.800

LOADS ESTIMATED BY RATING CURVE METHOD (LINEAR ATTRIBUTION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	0.25	0.23	0.22	0.30	0.26
STD DEV LOAD (LBS/DAY)	0.05	0.07	0.05	0.08	0.08

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.002 0.009 0.012 0.018 0.040 0.050 0.056 0.057

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.000 0.001 0.097 0.280 0.630 0.970 2.700 7.000

LOADS ESTIMATED BY RATING CURVE METHOD (LEAST ABSOLUTE DEVIATION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	0.29	0.43	0.28	0.16	0.28
STD DEV LOAD (LBS/DAY)	0.07	0.17	0.09	0.10	0.09

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.001 0.002 0.014 0.017 0.019 0.021 0.025 0.025

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.000 0.000 0.061 0.300 0.770 1.400 3.300 7.500

LOAD ESTIMATED BY BEALE RATIO ESTIMATOR

AVERAGE ANNUAL LOAD (LBS/DAY): 3.8E-01

## EUC04 Nitrate Model #4

STATION NAME:  
STATION NUMBER: EUC04  
DRAINAGE AREA: 20.9 SQUARE MILES

CONSTITUENT: nitrate  
LOAD ESTIMATES FOR 19980101 TO 20020315  
TOTAL NUMBER OF OBS.: 28 NUMBER OF UNCENSORED OBS.: 28  
CALIBRATION DATA PERIOD OF RECORD: 1998 TO 2002

CALIBRATION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
11. 1. 3. 4. 7. 11. 26. 79.

PREDICTION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
6. 0. 1. 1. 2. 5. 12. 412.

WARNING: THE RATIO OF LARGEST PREDICTION DATA SET STEAMFLOW AND LARGEST CALIBRATION DATA SET STREAMFLOW EXCEEDS 2.0

RATING-CURVE MODEL SELECTED BY USER

LOG STREAMFLOW ADJUSTMENT: -1.9740

DECIMAL TIME ADJUSTMENT : -1998.0

MAXIMUM LIKELIHOOD ESTIMATE OF SELECTED MODEL

-----  
 $\ln(\text{LOAD}) = + 3.2638E+00 + 1.2851E+00 \ln(\text{FLOW}) - 1.0423E-01 \sin(\text{DECTIME})$   
+ 3.3355E-01 cos(DECTIME)

ESTIMATED RESIDUAL VARIANCE = 0.115

TURNBULL-WEISS LIKELIHOOD RATIO NORMALITY TEST STATISTIC = 0.95 ( 2 DF)  
PROBABILITY LEVEL = 0.620

LINEAR ATTRIBUTION ESTIMATE OF SELECTED MODEL

-----  
 $\ln(\text{LOAD}) = + 3.2638E+00 + 1.2851E+00 \ln(\text{FLOW}) - 1.0423E-01 \sin(\text{DECTIME})$   
+ 3.3355E-01 cos(DECTIME)

ESTIMATED RESIDUAL VARIANCE = 0.115

LEAST ABSOLUTE DEVIATION ESTIMATE OF SELECTED MODEL

-----  
 $\ln(\text{LOAD}) = + 3.2042E+00 + 1.3004E+00 \ln(\text{FLOW}) + 2.1174E-03 \sin(\text{DECTIME})$   
+ 3.2433E-01 cos(DECTIME)

WARNING: ONE OF THE MAXIMUM PREDICTED CONCENTRATIONS EXCEEDS TWICE  
THE MAXIMUM OBSERVED SAMPLE CONCENTRATION OF 0.570 MG/L

STATION:  
STATION NUMBER: EUC04

LOADS ESTIMATED BY RATING CURVE METHOD (MAXIMUM LIKELIHOOD PARAM. EST.)

-----  
AVERAGE LOAD (LBS/DAY) ANNUAL SPRING SUMMER FALL WINTER  
STD DEV LOAD (LBS/DAY) 33. 35. 19. 18. 55.  
5. 4. 3. 5. 10.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.095 0.390 0.540 0.700 0.890 0.990 1.400 2.400

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)

MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.005	2.500	6.500	21.000	55.000	110.000	420.000	5300.000

LOADS ESTIMATED BY RATING CURVE METHOD (LINEAR ATTRIBUTION PARAM. EST.)

AVERAGE LOAD (LBS/DAY)	ANNUAL	SPRING	SUMMER	FALL	WINTER
STD DEV LOAD (LBS/DAY)	33.	35.	19.	19.	56.
	4.	3.	3.	5.	10.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)

MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.11	0.40	0.54	0.70	0.89	0.99	1.50	2.50

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)

MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.006	2.600	6.600	21.000	55.000	110.000	430.000	5600.000

LOADS ESTIMATED BY RATING CURVE METHOD (LEAST ABSOLUTE DEVIATION PARAM. EST.)

AVERAGE LOAD (LBS/DAY)	ANNUAL	SPRING	SUMMER	FALL	WINTER
STD DEV LOAD (LBS/DAY)	34.	38.	19.	17.	58.
	9.	5.	4.	5.	26.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)

MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.084	0.360	0.520	0.680	0.880	1.000	1.500	2.800

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)

MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.005	2.300	6.200	21.000	55.000	110.000	440.000	6200.000

LOAD ESTIMATED BY BEALE RATIO ESTIMATOR

AVERAGE ANNUAL LOAD (LBS/DAY): 28.

## EUC05 Nitrate Model #8

STATION NAME:  
STATION NUMBER: EUC05  
DRAINAGE AREA: 87.0 SQUARE MILES

CONSTITUENT: nitrate  
LOAD ESTIMATES FOR 19980101 TO 20020315  
TOTAL NUMBER OF OBS.: 35 NUMBER OF UNCENSORED OBS.: 35  
CALIBRATION DATA PERIOD OF RECORD: 1998 TO 2002

CALIBRATION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
42. 5. 9. 12. 20. 44. 97. 362.

PREDICTION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
26. 0. 2. 5. 9. 23. 51. 1556.

WARNING: THE RATIO OF LARGEST PREDICTION DATA SET STEAMFLOW AND LARGEST CALIBRATION DATA SET STREAMFLOW EXCEEDS 2.0

RATING-CURVE MODEL SELECTED BY USER

LOG STREAMFLOW ADJUSTMENT: -2.9816

DECIMAL TIME ADJUSTMENT : -1998.0

MAXIMUM LIKELIHOOD ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \text{LN(LOAD)} = & + 4.3147E+00 + 1.2005E+00 \text{ LN(FLOW)} - 6.8198E-02 \text{ LN(FLOW)}^{**2} \\ & - 3.4628E-02 \text{ SIN(DECTIME)} + 3.5530E-01 \text{ COS(DECTIME)} \\ & + 1.8372E-01 \text{ DECTIME} \end{aligned}$$

ESTIMATED RESIDUAL VARIANCE = 0.040

TURNBULL-WEISS LIKELIHOOD RATIO NORMALITY TEST STATISTIC = 4.66 ( 4 DF)  
PROBABILITY LEVEL = 0.324

LINEAR ATTRIBUTION ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \text{LN(LOAD)} = & + 4.3147E+00 + 1.2005E+00 \text{ LN(FLOW)} - 6.8198E-02 \text{ LN(FLOW)}^{**2} \\ & - 3.4628E-02 \text{ SIN(DECTIME)} + 3.5530E-01 \text{ COS(DECTIME)} \\ & + 1.8372E-01 \text{ DECTIME} \end{aligned}$$

ESTIMATED RESIDUAL VARIANCE = 0.040

LEAST ABSOLUTE DEVIATION ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \text{LN(LOAD)} = & + 4.2633E+00 + 1.2434E+00 \text{ LN(FLOW)} - 7.1999E-02 \text{ LN(FLOW)}^{**2} \\ & - 3.8910E-02 \text{ SIN(DECTIME)} + 3.7019E-01 \text{ COS(DECTIME)} \\ & + 2.0442E-01 \text{ DECTIME} \end{aligned}$$

STATION:  
STATION NUMBER: EUC05

LOADS ESTIMATED BY RATING CURVE METHOD (MAXIMUM LIKELIHOOD PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	140.	180.	86.	55.	220.
STD DEV LOAD (LBS/DAY)	10.	10.	9.	8.	21.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.011 0.630 0.870 1.100 1.400 1.700 2.000 2.400

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)

MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.004	18.000	49.000	130.000	310.000	540.000	1400.000	7700.000

LOADS ESTIMATED BY RATING CURVE METHOD (LINEAR ATTRIBUTION PARAM. EST.)

---

AVERAGE LOAD (LBS/DAY)	ANNUAL	SPRING	SUMMER	FALL	WINTER
STD DEV LOAD (LBS/DAY)	140.	180.	87.	56.	230.
	28.	23.	22.	18.	50.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)

MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.024	0.640	0.870	1.100	1.400	1.700	2.000	2.400

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)

MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.008	18.000	49.000	130.000	310.000	540.000	1400.000	8400.000

LOADS ESTIMATED BY RATING CURVE METHOD (LEAST ABSOLUTE DEVIATION PARAM. EST.)

---

AVERAGE LOAD (LBS/DAY)	ANNUAL	SPRING	SUMMER	FALL	WINTER
STD DEV LOAD (LBS/DAY)	150.	180.	90.	57.	240.
	36.	25.	28.	20.	70.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)

MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.016	0.600	0.850	1.100	1.500	1.800	2.100	2.700

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)

MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.005	17.000	48.000	130.000	320.000	560.000	1500.000	9700.000

LOAD ESTIMATED BY BEALE RATIO ESTIMATOR

---

AVERAGE ANNUAL LOAD (LBS/DAY): 140.

## EUC06 Nitrate Model #8

STATION NAME:  
STATION NUMBER: EUC06  
DRAINAGE AREA: 152.8 SQUARE MILES

CONSTITUENT: nitrate  
LOAD ESTIMATES FOR 19980101 TO 20020315  
TOTAL NUMBER OF OBS.: 221 NUMBER OF UNCENSORED OBS.: 221  
CALIBRATION DATA PERIOD OF RECORD: 1998 TO 2002

CALIBRATION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
298. 0. 7. 14. 69. 210. 454. 3170.

PREDICTION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
50. 0. 5. 10. 20. 47. 103. 3170.

RATING-CURVE MODEL SELECTED BY USER

LOG STREAMFLOW ADJUSTMENT: -4.2341

DECIMAL TIME ADJUSTMENT : -1998.0

MAXIMUM LIKELIHOOD ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \ln(\text{LOAD}) = & + 6.7480\text{E+00} + 9.8167\text{E-01} \ln(\text{FLOW}) - 5.5273\text{E-02} \ln(\text{FLOW})^{**2} \\ & + 2.1465\text{E-02} \sin(\text{DECTIME}) + 2.7618\text{E-01} \cos(\text{DECTIME}) \\ & + 4.7233\text{E-02} \text{DECTIME} \end{aligned}$$

ESTIMATED RESIDUAL VARIANCE = 0.258

TURNBULL-WEISS LIKELIHOOD RATIO NORMALITY TEST STATISTIC = 168.17 ( 41 DF)  
PROBABILITY LEVEL = 0.001

LINEAR ATTRIBUTION ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \ln(\text{LOAD}) = & + 6.7480\text{E+00} + 9.8167\text{E-01} \ln(\text{FLOW}) - 5.5273\text{E-02} \ln(\text{FLOW})^{**2} \\ & + 2.1465\text{E-02} \sin(\text{DECTIME}) + 2.7618\text{E-01} \cos(\text{DECTIME}) \\ & + 4.7233\text{E-02} \text{DECTIME} \end{aligned}$$

ESTIMATED RESIDUAL VARIANCE = 0.258

LEAST ABSOLUTE DEVIATION ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \ln(\text{LOAD}) = & + 6.7175\text{E+00} + 1.0303\text{E+00} \ln(\text{FLOW}) - 4.7335\text{E-02} \ln(\text{FLOW})^{**2} \\ & - 1.4140\text{E-02} \sin(\text{DECTIME}) + 3.0303\text{E-01} \cos(\text{DECTIME}) \\ & + 8.0490\text{E-02} \text{DECTIME} \end{aligned}$$

STATION:  
STATION NUMBER: EUC06

LOADS ESTIMATED BY RATING CURVE METHOD (MAXIMUM LIKELIHOOD PARAM. EST.)

AVERAGE LOAD (LBS/DAY)	ANNUAL	SPRING	SUMMER	FALL	WINTER
STD DEV LOAD (LBS/DAY)	690.	960.	430.	280.	1000.
	34.	64.	25.	22.	67.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.28 2.10 2.60 3.20 3.50 3.70 4.00 4.10

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.18 130.00 300.00 780.00 1600.00 2400.00 5900.00 26000.00

LOADS ESTIMATED BY RATING CURVE METHOD (LINEAR ATTRIBUTION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	650.	910.	410.	270.	970.
STD DEV LOAD (LBS/DAY)	17.	33.	16.	14.	42.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.27 2.00 2.50 3.10 3.40 3.50 3.80 3.90

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.18 120.00 290.00 740.00 1500.00 2300.00 5600.00 24000.00

LOADS ESTIMATED BY RATING CURVE METHOD (LEAST ABSOLUTE DEVIATION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	650.	870.	410.	270.	1000.
STD DEV LOAD (LBS/DAY)	42.	110.	21.	43.	88.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.27 1.90 2.30 2.90 3.30 3.50 3.90 4.20

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.17 110.00 270.00 690.00 1500.00 2400.00 5900.00 33000.00

LOAD ESTIMATED BY BEALE RATIO ESTIMATOR

AVERAGE ANNUAL LOAD (LBS/DAY): 530.

## EUC07 Nitrate Model #7

STATION NAME:  
STATION NUMBER: EUC07  
DRAINAGE AREA: 50.6 SQUARE MILES

CONSTITUENT: nitrate  
LOAD ESTIMATES FOR 19980101 TO 20020315  
TOTAL NUMBER OF OBS.: 48 NUMBER OF UNCENSORED OBS.: 48  
CALIBRATION DATA PERIOD OF RECORD: 1998 TO 2002

CALIBRATION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
17. 2. 3. 5. 8. 19. 39. 186.

PREDICTION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
15. 0. 1. 3. 5. 13. 29. 967.

WARNING: THE RATIO OF LARGEST PREDICTION DATA SET STEAMFLOW AND LARGEST CALIBRATION DATA SET STREAMFLOW EXCEEDS 2.0

RATING-CURVE MODEL SELECTED BY USER

LOG STREAMFLOW ADJUSTMENT: -2.0233

DECIMAL TIME ADJUSTMENT : -1998.0

MAXIMUM LIKELIHOOD ESTIMATE OF SELECTED MODEL

-----  
 $\text{LN(LOAD)} = + 3.1892\text{E+00} + 1.0462\text{E+00} \text{LN(FLOW)} + 2.4092\text{E-02} \text{SIN(DECTIME)}$   
+ 3.1323E-01 COS(DECTIME) + 8.9545E-02 DECTIME

ESTIMATED RESIDUAL VARIANCE = 0.033

TURNBULL-WEISS LIKELIHOOD RATIO NORMALITY TEST STATISTIC = 3.89 ( 6 DF)  
PROBABILITY LEVEL = 0.691

LINEAR ATTRIBUTION ESTIMATE OF SELECTED MODEL

-----  
 $\text{LN(LOAD)} = + 3.1892\text{E+00} + 1.0462\text{E+00} \text{LN(FLOW)} + 2.4092\text{E-02} \text{SIN(DECTIME)}$   
+ 3.1323E-01 COS(DECTIME) + 8.9545E-02 DECTIME

ESTIMATED RESIDUAL VARIANCE = 0.033

LEAST ABSOLUTE DEVIATION ESTIMATE OF SELECTED MODEL

-----  
 $\text{LN(LOAD)} = + 3.1790\text{E+00} + 1.0294\text{E+00} \text{LN(FLOW)} - 2.6211\text{E-02} \text{SIN(DECTIME)}$   
+ 3.0178E-01 COS(DECTIME) + 9.5323E-02 DECTIME

STATION:  
STATION NUMBER: EUC07

LOADS ESTIMATED BY RATING CURVE METHOD (MAXIMUM LIKELIHOOD PARAM. EST.)

-----  
AVERAGE LOAD (LBS/DAY) ANNUAL SPRING SUMMER FALL WINTER  
64. 78. 38. 32. 100.  
STD DEV LOAD (LBS/DAY) 4. 4. 3. 3. 7.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.42 0.58 0.73 0.91 1.00 1.10 1.20 1.30

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.070 10.000 23.000 56.000 120.000 220.000 650.000 6300.000

LOADS ESTIMATED BY RATING CURVE METHOD (LINEAR ATTRIBUTION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	64.	78.	38.	32.	100.
STD DEV LOAD (LBS/DAY)	4.	4.	2.	4.	9.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)							
MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.42	0.58	0.73	0.91	1.00	1.10	1.20	1.30

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)							
MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.071	10.000	23.000	56.000	120.000	220.000	650.000	6400.000

LOADS ESTIMATED BY RATING CURVE METHOD (LEAST ABSOLUTE DEVIATION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	62.	74.	38.	33.	98.
STD DEV LOAD (LBS/DAY)	5.	5.	3.	4.	8.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)							
MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.46	0.60	0.74	0.90	1.00	1.10	1.20	1.30

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)							
MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.082	11.000	24.000	54.000	120.000	210.000	600.000	5700.000

LOAD ESTIMATED BY BEALE RATIO ESTIMATOR

AVERAGE ANNUAL LOAD (LBS/DAY) : 57.

## EUC08 Nitrate Model #6

STATION NAME:  
STATION NUMBER: EUC08  
DRAINAGE AREA: 516.9 SQUARE MILES

CONSTITUENT: nitrate  
LOAD ESTIMATES FOR 19980101 TO 20020315  
TOTAL NUMBER OF OBS.: 176 NUMBER OF UNCENSORED OBS.: 176  
CALIBRATION DATA PERIOD OF RECORD: 1998 TO 2002

CALIBRATION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
788. 13. 39. 62. 124. 341. 2536. 7275.

PREDICTION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
182. 13. 38. 55. 92. 159. 317. 7275.

RATING-CURVE MODEL SELECTED BY USER

LOG STREAMFLOW ADJUSTMENT: -4.8217

DECIMAL TIME ADJUSTMENT : -1998.0

MAXIMUM LIKELIHOOD ESTIMATE OF SELECTED MODEL

$$\text{LN(LOAD)} = + 7.6781\text{E}+00 + 1.0830\text{E}+00 \text{LN(FLOW)} - 5.5562\text{E}-02 \text{LN(FLOW)}^{**2} \\ + 5.2147\text{E}-02 \text{SIN(DECTIME)} + 9.1691\text{E}-02 \text{COS(DECTIME)}$$

ESTIMATED RESIDUAL VARIANCE = 0.069

TURNBULL-WEISS LIKELIHOOD RATIO NORMALITY TEST STATISTIC = 91.86 ( 32 DF)  
PROBABILITY LEVEL = 0.001

LINEAR ATTRIBUTION ESTIMATE OF SELECTED MODEL

$$\text{LN(LOAD)} = + 7.6781\text{E}+00 + 1.0830\text{E}+00 \text{LN(FLOW)} - 5.5562\text{E}-02 \text{LN(FLOW)}^{**2} \\ + 5.2147\text{E}-02 \text{SIN(DECTIME)} + 9.1691\text{E}-02 \text{COS(DECTIME)}$$

ESTIMATED RESIDUAL VARIANCE = 0.069

LEAST ABSOLUTE DEVIATION ESTIMATE OF SELECTED MODEL

$$\text{LN(LOAD)} = + 7.7568\text{E}+00 + 1.1335\text{E}+00 \text{LN(FLOW)} - 6.5758\text{E}-02 \text{LN(FLOW)}^{**2} \\ + 3.4101\text{E}-03 \text{SIN(DECTIME)} + 1.5078\text{E}-01 \text{COS(DECTIME)}$$

STATION:

STATION NUMBER: EUC08

LOADS ESTIMATED BY RATING CURVE METHOD (MAXIMUM LIKELIHOOD PARAM. EST.)

AVERAGE LOAD (LBS/DAY)	ANNUAL	SPRING	SUMMER	FALL	WINTER
STD DEV LOAD (LBS/DAY)	3100.	4200.	3000.	1200.	3800.
	73.	130.	110.	51.	130.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
2. 3. 3. 4. 4. 4. 4. 4.

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
130. 870. 1700. 3000. 5900. 11000. 27000. 70000.

LOADS ESTIMATED BY RATING CURVE METHOD (LINEAR ATTRIBUTION PARAM. EST.)

---

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	3100.	4100.	2900.	1200.	3800.
STD DEV LOAD (LBS/DAY)	75.	120.	81.	38.	170.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
2. 3. 3. 4. 4. 4. 4.

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
130. 870. 1700. 3000. 5900. 11000. 27000. 70000.

LOADS ESTIMATED BY RATING CURVE METHOD (LEAST ABSOLUTE DEVIATION PARAM. EST.)

---

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	3100.	4100.	2900.	1300.	4100.
STD DEV LOAD (LBS/DAY)	63.	77.	170.	43.	98.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
2. 3. 3. 4. 4. 4. 4.

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
110. 870. 1700. 3100. 6100. 11000. 31000. 74000.

LOAD ESTIMATED BY BEALE RATIO ESTIMATOR

---

AVERAGE ANNUAL LOAD (LBS/DAY): 2300.

## EUC09 Nitrate Model #6

STATION NAME:  
STATION NUMBER: EUC09  
DRAINAGE AREA: 423.5 SQUARE MILES

CONSTITUENT: nitrate  
LOAD ESTIMATES FOR 19980101 TO 20020315  
TOTAL NUMBER OF OBS.: 70 NUMBER OF UNCENSORED OBS.: 70  
CALIBRATION DATA PERIOD OF RECORD: 1998 TO 2002

CALIBRATION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
164. 11. 32. 45. 77. 148. 366. 1194.

PREDICTION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
148. 10. 31. 45. 77. 131. 259. 6469.

WARNING: THE RATIO OF LARGEST PREDICTION DATA SET STEAMFLOW AND LARGEST CALIBRATION DATA SET STREAMFLOW EXCEEDS 2.0

RATING-CURVE MODEL SELECTED BY USER

LOG STREAMFLOW ADJUSTMENT: -4.3485

DECIMAL TIME ADJUSTMENT : -1998.0

MAXIMUM LIKELIHOOD ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \ln(\text{LOAD}) = & + 7.3432\text{E+00} + 1.1954\text{E+00} \ln(\text{FLOW}) - 7.9192\text{E-02} \ln(\text{FLOW})^{**2} \\ & + 8.2681\text{E-02} \sin(\text{DECTIME}) + 1.7433\text{E-01} \cos(\text{DECTIME}) \end{aligned}$$

ESTIMATED RESIDUAL VARIANCE = 0.360

TURNBULL-WEISS LIKELIHOOD RATIO NORMALITY TEST STATISTIC = 104.65 ( 11 DF)  
PROBABILITY LEVEL = 0.001

LINEAR ATTRIBUTION ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \ln(\text{LOAD}) = & + 7.3432\text{E+00} + 1.1954\text{E+00} \ln(\text{FLOW}) - 7.9192\text{E-02} \ln(\text{FLOW})^{**2} \\ & + 8.2681\text{E-02} \sin(\text{DECTIME}) + 1.7433\text{E-01} \cos(\text{DECTIME}) \end{aligned}$$

ESTIMATED RESIDUAL VARIANCE = 0.360

LEAST ABSOLUTE DEVIATION ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \ln(\text{LOAD}) = & + 7.4378\text{E+00} + 1.1645\text{E+00} \ln(\text{FLOW}) - 1.0179\text{E-01} \ln(\text{FLOW})^{**2} \\ & + 3.0320\text{E-02} \sin(\text{DECTIME}) + 1.5709\text{E-01} \cos(\text{DECTIME}) \end{aligned}$$

STATION:  
STATION NUMBER: EUC09

LOADS ESTIMATED BY RATING CURVE METHOD (MAXIMUM LIKELIHOOD PARAM. EST.)

AVERAGE LOAD (LBS/DAY)	ANNUAL	SPRING	SUMMER	FALL	WINTER
STD DEV LOAD (LBS/DAY)	3500.	4900.	2900.	1400.	4600.
	510.	690.	790.	180.	830.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
1. 4. 4. 5. 6. 6. 6. 6.

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
100. 930. 1900. 3600. 7100. 13000. 30000. 58000.

LOADS ESTIMATED BY RATING CURVE METHOD (LINEAR ATTRIBUTION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	3200.	4400.	2700.	1200.	4200.
STD DEV LOAD (LBS/DAY)	280.	560.	320.	120.	400.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 2. 3. 4. 5. 5. 5. 5.

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 97. 840. 1700. 3300. 6400. 12000. 29000. 71000.

LOADS ESTIMATED BY RATING CURVE METHOD (LEAST ABSOLUTE DEVIATION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	2900.	4000.	2400.	1300.	3800.
STD DEV LOAD (LBS/DAY)	150.	510.	160.	140.	190.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 0.98 3.40 3.90 4.60 4.80 4.90 5.00 5.10

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 100. 890. 1800. 3200. 6000. 10000. 22000. 41000.

LOAD ESTIMATED BY BEALE RATIO ESTIMATOR

AVERAGE ANNUAL LOAD (LBS/DAY): 3200.

## EUC10 Nitrate Model #8

STATION NAME:  
STATION NUMBER: EUC10  
DRAINAGE AREA: 268.9 SQUARE MILES

CONSTITUENT: nitrate  
LOAD ESTIMATES FOR 19980101 TO 20020315  
TOTAL NUMBER OF OBS.: 66 NUMBER OF UNCENSORED OBS.: 66  
CALIBRATION DATA PERIOD OF RECORD: 1998 TO 2002

CALIBRATION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
75. 7. 19. 27. 46. 88. 178. 446.

PREDICTION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
94. 7. 20. 28. 49. 82. 161. 4962.

WARNING: THE RATIO OF LARGEST PREDICTION DATA SET STEAMFLOW AND LARGEST CALIBRATION DATA SET STREAMFLOW EXCEEDS 2.0

RATING-CURVE MODEL SELECTED BY USER

LOG STREAMFLOW ADJUSTMENT: -3.8286

DECIMAL TIME ADJUSTMENT : -1998.0

MAXIMUM LIKELIHOOD ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \ln(\text{LOAD}) = & + 6.8577E+00 + 1.1688E+00 \ln(\text{FLOW}) - 4.4032E-02 \ln(\text{FLOW})^{**2} \\ & - 1.5702E-02 \sin(\text{DECTIME}) + 1.6480E-01 \cos(\text{DECTIME}) \\ & + 3.5499E-02 \text{DECTIME} \end{aligned}$$

ESTIMATED RESIDUAL VARIANCE = 0.019

TURNBULL-WEISS LIKELIHOOD RATIO NORMALITY TEST STATISTIC = 8.85 ( 10 DF)  
PROBABILITY LEVEL = 0.547

LINEAR ATTRIBUTION ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \ln(\text{LOAD}) = & + 6.8577E+00 + 1.1688E+00 \ln(\text{FLOW}) - 4.4032E-02 \ln(\text{FLOW})^{**2} \\ & - 1.5702E-02 \sin(\text{DECTIME}) + 1.6480E-01 \cos(\text{DECTIME}) \\ & + 3.5499E-02 \text{DECTIME} \end{aligned}$$

ESTIMATED RESIDUAL VARIANCE = 0.019

LEAST ABSOLUTE DEVIATION ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \ln(\text{LOAD}) = & + 6.8161E+00 + 1.1591E+00 \ln(\text{FLOW}) - 2.1978E-02 \ln(\text{FLOW})^{**2} \\ & + 1.7543E-02 \sin(\text{DECTIME}) + 1.3853E-01 \cos(\text{DECTIME}) \\ & + 4.9929E-02 \text{DECTIME} \end{aligned}$$

STATION:  
STATION NUMBER: EUC10

LOADS ESTIMATED BY RATING CURVE METHOD (MAXIMUM LIKELIHOOD PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	2200.	2800.	2200.	920.	2900.
STD DEV LOAD (LBS/DAY)	130.	110.	250.	30.	190.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
2. 4. 4. 5. 5. 5. 6. 6.

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 83. 600. 1100. 2000. 4000. 7600. 21000. 73000.

LOADS ESTIMATED BY RATING CURVE METHOD (LINEAR ATTRIBUTION PARAM. EST.)

AVERAGE LOAD (LBS/DAY)	ANNUAL	SPRING	SUMMER	FALL	WINTER
	2200.	2800.	2200.	920.	2900.
STD DEV LOAD (LBS/DAY)	230.	190.	420.	33.	310.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 2. 4. 4. 5. 5. 5. 6. 6.

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 83. 600. 1100. 2000. 4000. 7600. 21000. 78000.

LOADS ESTIMATED BY RATING CURVE METHOD (LEAST ABSOLUTE DEVIATION PARAM. EST.)

AVERAGE LOAD (LBS/DAY)	ANNUAL	SPRING	SUMMER	FALL	WINTER
	2400.	2900.	2600.	890.	3100.
STD DEV LOAD (LBS/DAY)	410.	350.	790.	44.	520.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 2. 4. 4. 5. 5. 6. 6. 7.

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
 MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
 86. 590. 1100. 2000. 4200. 8100. 24000. 120000.

LOAD ESTIMATED BY BEALE RATIO ESTIMATOR

AVERAGE ANNUAL LOAD (LBS/DAY): 2200.

## EUC11 Nitrate Model #6

STATION NAME:

STATION NUMBER: EUC11

DRAINAGE AREA: 65.9 SQUARE MILES

CONSTITUENT: nitrate

LOAD ESTIMATES FOR 19980101 TO 20020315

TOTAL NUMBER OF OBS.: 67 NUMBER OF UNCENSORED OBS.: 67

CALIBRATION DATA PERIOD OF RECORD: 1998 TO 2002

CALIBRATION DATA SET STREAMFLOW SUMMARY STATISTICS

MEAN	MINIMUM	10TH PCT	25TH PCT	MEDIAN	75TH PCT	90TH PCT	MAXIMUM
44.	0.	2.	4.	7.	20.	50.	1818.

PREDICTION DATA SET STREAMFLOW SUMMARY STATISTICS

MEAN	MINIMUM	10TH PCT	25TH PCT	MEDIAN	75TH PCT	90TH PCT	MAXIMUM
20.	0.	2.	3.	7.	18.	39.	1818.

RATING-CURVE MODEL SELECTED BY USER

LOG STREAMFLOW ADJUSTMENT: -1.9629

DECIMAL TIME ADJUSTMENT : -1998.0

MAXIMUM LIKELIHOOD ESTIMATE OF SELECTED MODEL

-----  
 $\text{LN(LOAD)} = + 4.8469\text{E+00} + 1.0702\text{E+00} \text{LN(FLOW)} - 1.9893\text{E-02} \text{LN(FLOW)}^{**2}$   
+ 5.8881E-02 SIN(DECTIME) + 1.7085E-01 COS(DECTIME)

ESTIMATED RESIDUAL VARIANCE = 0.078

TURNBULL-WEISS LIKELIHOOD RATIO NORMALITY TEST STATISTIC = 19.55 ( 10 DF)  
PROBABILITY LEVEL = 0.034

LINEAR ATTRIBUTION ESTIMATE OF SELECTED MODEL

-----  
 $\text{LN(LOAD)} = + 4.8469\text{E+00} + 1.0702\text{E+00} \text{LN(FLOW)} - 1.9893\text{E-02} \text{LN(FLOW)}^{**2}$   
+ 5.8881E-02 SIN(DECTIME) + 1.7085E-01 COS(DECTIME)

ESTIMATED RESIDUAL VARIANCE = 0.078

LEAST ABSOLUTE DEVIATION ESTIMATE OF SELECTED MODEL

-----  
 $\text{LN(LOAD)} = + 4.8818\text{E+00} + 1.0753\text{E+00} \text{LN(FLOW)} - 3.0795\text{E-02} \text{LN(FLOW)}^{**2}$   
+ 7.7990E-02 SIN(DECTIME) + 1.5957E-01 COS(DECTIME)

STATION:

STATION NUMBER: EUC11

LOADS ESTIMATED BY RATING CURVE METHOD (MAXIMUM LIKELIHOOD PARAM. EST.)

-----  
AVERAGE LOAD (LBS/DAY) ANNUAL SPRING SUMMER FALL WINTER  
STD DEV LOAD (LBS/DAY) 390. 540. 310. 150. 540.  
25. 33. 29. 13. 46.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)

MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
1.	3.	4.	4.	4.	4.	4.	4.

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)

MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.26	59.00	140.00	370.00	800.00	1400.00	3800.00	26000.00

LOADS ESTIMATED BY RATING CURVE METHOD (LINEAR ATTRIBUTION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	390.	540.	310.	150.	540.
STD DEV LOAD (LBS/DAY)	48.	46.	66.	21.	71.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)							
MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
1.	3.	4.	4.	4.	4.	4.	4.

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)							
MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.27	59.00	140.00	370.00	800.00	1400.00	3800.00	26000.00

LOADS ESTIMATED BY RATING CURVE METHOD (LEAST ABSOLUTE DEVIATION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	380.	540.	290.	140.	510.
STD DEV LOAD (LBS/DAY)	45.	89.	52.	29.	87.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)							
MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.92	3.00	3.50	4.00	4.20	4.30	4.40	4.40

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)							
MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.20	59.00	140.00	380.00	810.00	1400.00	3500.00	21000.00

LOAD ESTIMATED BY BEALE RATIO ESTIMATOR

AVERAGE ANNUAL LOAD (LBS/DAY): 250.

## EUC12 Nitrate Model #7

STATION NAME:  
STATION NUMBER: EUC12  
DRAINAGE AREA: 64.3 SQUARE MILES

CONSTITUENT: nitrate  
LOAD ESTIMATES FOR 19980101 TO 20020315  
TOTAL NUMBER OF OBS.: 13 NUMBER OF UNCENSORED OBS.: 13  
CALIBRATION DATA PERIOD OF RECORD: 1998 TO 2001

CALIBRATION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
41. 13. 15. 21. 39. 56. 74. 76.

PREDICTION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
22. 2. 5. 7. 12. 20. 41. 585.

WARNING: THE RATIO OF LARGEST PREDICTION DATA SET STEAMFLOW AND LARGEST CALIBRATION DATA SET STREAMFLOW EXCEEDS 2.0

RATING-CURVE MODEL SELECTED BY USER

LOG STREAMFLOW ADJUSTMENT: -3.6710

DECIMAL TIME ADJUSTMENT : -1998.0

MAXIMUM LIKELIHOOD ESTIMATE OF SELECTED MODEL

-----  
 $\ln(\text{LOAD}) = + 5.5539\text{E}+00 + 8.3188\text{E}-01 \ln(\text{FLOW}) - 1.3583\text{E}-01 \sin(\text{DECTIME})$   
+ 3.4222E-01 COS(DECTIME) + 1.5375E-01 DECTIME

ESTIMATED RESIDUAL VARIANCE = 0.040

TURNBULL-WEISS LIKELIHOOD RATIO NORMALITY TEST STATISTIC = 0.22 ( 1 DF)  
PROBABILITY LEVEL = 0.639

LINEAR ATTRIBUTION ESTIMATE OF SELECTED MODEL

-----  
 $\ln(\text{LOAD}) = + 5.5539\text{E}+00 + 8.3188\text{E}-01 \ln(\text{FLOW}) - 1.3583\text{E}-01 \sin(\text{DECTIME})$   
+ 3.4222E-01 COS(DECTIME) + 1.5375E-01 DECTIME

ESTIMATED RESIDUAL VARIANCE = 0.040

LEAST ABSOLUTE DEVIATION ESTIMATE OF SELECTED MODEL

-----  
 $\ln(\text{LOAD}) = + 5.4739\text{E}+00 + 8.3175\text{E}-01 \ln(\text{FLOW}) - 2.1332\text{E}-01 \sin(\text{DECTIME})$   
+ 3.6867E-01 COS(DECTIME) + 2.1969E-01 DECTIME

WARNING: ONE OF THE MAXIMUM PREDICTED CONCENTRATIONS EXCEEDS TWICE  
THE MAXIMUM OBSERVED SAMPLE CONCENTRATION OF 1.200 MG/L

STATION:  
STATION NUMBER: EUC12

LOADS ESTIMATED BY RATING CURVE METHOD (MAXIMUM LIKELIHOOD PARAM. EST.)

-----  
AVERAGE LOAD (LBS/DAY) ANNUAL SPRING SUMMER FALL WINTER  
STD DEV LOAD (LBS/DAY) 200. 210. 150. 130. 290.  
15. 17. 18. 25. 32.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.66 1.50 2.10 2.90 3.40 3.70 4.10 4.20

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)

MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
19.	85.	140.	220.	360.	560.	1300.	3100.

LOADS ESTIMATED BY RATING CURVE METHOD (LINEAR ATTRIBUTION PARAM. EST.)

AVERAGE LOAD (LBS/DAY)	ANNUAL	SPRING	SUMMER	FALL	WINTER
STD DEV LOAD (LBS/DAY)	200.	210.	150.	130.	290.
	16.	21.	16.	32.	43.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)

MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.70	1.60	2.10	3.00	3.40	3.80	4.10	4.30

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)

MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
20.	87.	140.	220.	360.	560.	1300.	3200.

LOADS ESTIMATED BY RATING CURVE METHOD (LEAST ABSOLUTE DEVIATION PARAM. EST.)

AVERAGE LOAD (LBS/DAY)	ANNUAL	SPRING	SUMMER	FALL	WINTER
STD DEV LOAD (LBS/DAY)	210.	200.	160.	160.	320.
	22.	49.	14.	61.	77.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)

MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.69	1.60	2.20	3.30	4.10	4.70	5.30	5.50

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)

MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
21.	93.	140.	240.	390.	580.	1400.	3500.

LOAD ESTIMATED BY BEALE RATIO ESTIMATOR

AVERAGE ANNUAL LOAD (LBS/DAY): 170.

## SPA06 Nitrate Model #6

STATION NAME:  
STATION NUMBER: SPA06  
DRAINAGE AREA: 15.6 SQUARE MILES

CONSTITUENT: nitrate  
LOAD ESTIMATES FOR 19980101 TO 20020315  
TOTAL NUMBER OF OBS.: 68 NUMBER OF UNCENSORED OBS.: 68  
CALIBRATION DATA PERIOD OF RECORD: 1998 TO 2001

CALIBRATION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
33. 0. 0. 1. 9. 81. 112. 112.

PREDICTION DATA SET STREAMFLOW SUMMARY STATISTICS  
MEAN MINIMUM 10TH PCT 25TH PCT MEDIAN 75TH PCT 90TH PCT MAXIMUM  
3. 0. 0. 0. 1. 3. 8. 112.

RATING-CURVE MODEL SELECTED BY USER

LOG STREAMFLOW ADJUSTMENT: -2.1654

DECIMAL TIME ADJUSTMENT : -1998.0

MAXIMUM LIKELIHOOD ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \ln(\text{LOAD}) = & + 3.5089E+00 + 1.0920E+00 \ln(\text{FLOW}) - 1.9811E-03 \ln(\text{FLOW})^{**2} \\ & + 8.7358E-02 \sin(\text{DECTIME}) + 6.6662E-01 \cos(\text{DECTIME}) \end{aligned}$$

ESTIMATED RESIDUAL VARIANCE = 0.108

TURNBULL-WEISS LIKELIHOOD RATIO NORMALITY TEST STATISTIC = 30.68 ( 10 DF)  
PROBABILITY LEVEL = 0.001

LINEAR ATTRIBUTION ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \ln(\text{LOAD}) = & + 3.5089E+00 + 1.0920E+00 \ln(\text{FLOW}) - 1.9811E-03 \ln(\text{FLOW})^{**2} \\ & + 8.7358E-02 \sin(\text{DECTIME}) + 6.6662E-01 \cos(\text{DECTIME}) \end{aligned}$$

ESTIMATED RESIDUAL VARIANCE = 0.108

LEAST ABSOLUTE DEVIATION ESTIMATE OF SELECTED MODEL

$$\begin{aligned} \ln(\text{LOAD}) = & + 3.4957E+00 + 1.1155E+00 \ln(\text{FLOW}) + 5.3561E-03 \ln(\text{FLOW})^{**2} \\ & + 1.2003E-01 \sin(\text{DECTIME}) + 5.6463E-01 \cos(\text{DECTIME}) \end{aligned}$$

STATION:

STATION NUMBER: SPA06

LOADS ESTIMATED BY RATING CURVE METHOD (MAXIMUM LIKELIHOOD PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	15.	23.	7.	6.	24.
STD DEV LOAD (LBS/DAY)	1.	1.	1.	1.	2.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.18 0.34 0.57 0.85 1.10 1.20 1.50 1.80

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)  
MINIMUM 25TH PCT MEDIAN 75TH PCT 90TH PCT 95TH PCT 99TH PCT MAXIMUM  
0.010 0.026 2.400 11.000 36.000 65.000 210.000 1000.000

LOADS ESTIMATED BY RATING CURVE METHOD (LINEAR ATTRIBUTION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	15.	23.	7.	6.	24.
STD DEV LOAD (LBS/DAY)	1.	2.	1.	1.	2.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)							
MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.19	0.34	0.57	0.86	1.10	1.20	1.50	1.80

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)							
MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.010	0.027	2.400	11.000	36.000	65.000	220.000	1000.000

LOADS ESTIMATED BY RATING CURVE METHOD (LEAST ABSOLUTE DEVIATION PARAM. EST.)

	ANNUAL	SPRING	SUMMER	FALL	WINTER
AVERAGE LOAD (LBS/DAY)	15.	23.	7.	6.	22.
STD DEV LOAD (LBS/DAY)	1.	2.	2.	1.	5.

PREDICTED CONCENTRATION SUMMARY STATISTICS (MG/L)							
MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.23	0.36	0.58	0.79	1.00	1.10	1.30	1.70

PREDICTED LOAD SUMMARY STATISTICS (LBS/DAY)							
MINIMUM	25TH PCT	MEDIAN	75TH PCT	90TH PCT	95TH PCT	99TH PCT	MAXIMUM
0.013	0.028	2.300	11.000	33.000	63.000	210.000	970.000

LOAD ESTIMATED BY BEALE RATIO ESTIMATOR

AVERAGE ANNUAL LOAD (LBS/DAY): 22.

## Appendix E

Landuse	Depth inches	Ph	Buffer Index	Nitrogen lb/acre	Phosphorus lb/acre	Potassium lb/acre	Marshall's Subbasin
FRST	6	5.5	6.9	2	28	139	Eucha
FRST	2	5.2	6.8	5	36	202	Eucha
FRST	2	6.3	7.2	10	83	419	Eucha
FRST	2	6.2	7.1	7	80	389	Eucha
FRST	6	6.2	7.1	7	83	348	Eucha
FRST	6	5.8	6.8	7	90	363	Eucha
PAST	2	4.9	6.5	18	143	328	Eucha
PAST	6	5.1	6.7	10	79	206	Eucha
PAST	2	5.3	6.8	16	57	264	Eucha
PAST	2	5.4	6.8	14	36	279	Eucha
PAST	6	5.6	6.9	8	37	251	Eucha
PAST	6	5	6.7	6	52	134	Eucha
PAST	2	5.9	6.9	16	146	373	Eucha
PAST	6	5.9	6.9	12	150	306	Eucha
PAST	2	6.2	7.1	23	75	370	Eucha
PAST	6	6.2	7.1	8	56	242	Eucha
FRST	6	6.4	7.2	31	164	629	Dry
FRST	2	6.1	7	23	101	433	Dry
FRST	6	5.9	7.1	10	261	349	Dry
FRST	6	5.8	7	10	265	369	Dry
FRST	6	5.4	6.8	9	40	242	Dry
FRST	2	5.5	6.8	17	47	304	Dry
FRST	2	5.8	7	15	230	392	Dry
FRST	2	5.8	6.9	15	228	427	Dry
FRST	6	6.3	7.2	6	47	206	Dry
FRST	6	5.4	6.8	5	29	170	Dry
FRST	2	5.5	6.8	7	33	225	Dry
FRST	2	5.1	6.4	16	64	271	Dry
FRST	6	4.9	6.6	5	40	183	Dry
FRST	6	5.5	6.8	11	71	312	Dry
FRST	2	6.1	7	19	106	499	Dry
FRST	6	4.5	6.4	2	42	122	Dry
FRST	2	4.7	6.5	2	43	141	Dry
FRST	6	4.8	6.5	4	37	130	Dry
FRST	2	4.7	6.5	3	34	133	Dry
FRST	6	6.4	7.2	17	139	425	Dry
FRST	2	6.5	0	13	120	463	Dry
FRST	6	5.1	6.7	2	47	214	Dry
FRST	2	5.4	6.9	3	52	250	Dry
PAST	2	5.6	6.9	6	47	310	Dry
PAST	6	5.7	7	13	59	433	Dry
PAST	2	5.9	7	3	38	227	Dry
PAST	2	5.5	6.8	17	60	403	Dry
PAST	2	5.9	7	3	36	229	Dry
PAST	2	6.1	7	25	107	465	Dry
PAST	6	5.5	6.9	4	41	270	Dry
PAST	6	6.2	7	22	126	538	Dry
PAST	6	5.5	6.9	11	47	318	Dry
PAST	2	5.4	6.8	19	48	299	Dry
PAST	6	5.8	7	2	36	223	Dry

PAST	6	5.8	7	2	34	202	Dry
PAST	6	5.7	6.9	23	96	236	Dry
PAST	2	5.7	6.9	17	118	448	Dry
PAST	6	5.9	7.1	17	61	139	Dry
PAST	2	5.8	6.9	18	57	459	Dry
PAST	2	5.7	6.9	20	122	176	Dry
PAST	6	5.7	6.9	15	53	417	Dry
PAST	2	6.8	0	9	68	267	Dry
PAST	2	5.1	6.7	29	245	285	Dry
PAST	6	5	6.6	9	243	243	Dry
PAST	6	5.8	7	20	67	221	Dry
PAST	2	5.8	7	35	88	361	Dry
PAST	6	5.8	7	12	50	274	Dry
PAST	2	6	7.1	16	63	361	Dry
PAST	2	5	6.7	8	122	237	Dry
PAST	6	5.5	6.9	9	48	297	Dry
PAST	6	0	0	17	79	221	Dry
PAST	2	5.5	7	8	64	398	Dry
PAST	6	5.1	6.9	8	37	242	Dry
PAST	2	5.1	7	24	51	291	Dry
PAST	2	5	6.7	24	37	355	Dry
PAST	6	5	6.8	44	43	356	Dry
PAST	6	5.2	7	6	26	194	Dry
PAST	2	5.2	7.1	5	23	204	Dry
PAST	6	5.3	7	6	23	210	Dry
PAST	6	5.3	7.1	6	26	216	Dry
PAST	6	5.7	7	5	83	373	Dry
PAST	2	5.7	7	5	87	355	Dry
PAST	6	5.3	6.8	6	41	267	Dry
PAST	2	5.1	6.7	8	50	303	Dry
PAST	6	5.9	7.1	29	44	196	Dry
PAST	2	5.6	7	5	70	350	Dry
PAST	6	5.8	7	15	43	205	Dry
PAST	2	5.7	7	20	37	185	Dry
PAST	6	5.7	7	5	74	384	Dry
PAST	2	5.8	7	13	39	195	Dry
PAST	2	5.2	7	6	27	207	Dry
PAST	2	5.9	7.3	2	28	268	Dry
FRST	2	5.9	7	33	105	233	Brush
FRST	2	5.5	6.9	25	45	251	Brush
FRST	6	5.6	7	16	57	443	Brush
FRST	6	5.6	6.9	16	53	367	Brush
FRST	6	5.9	6.9	35	114	216	Brush
FRST	2	5.6	6.9	14	53	336	Brush
FRST	6	5.6	7	11	42	240	Brush
FRST	2	5.8	7	8	45	326	Brush
FRST	2	5.7	6.9	1	37	185	Brush
FRST	6	5.2	6.7	1	31	153	Brush
PAST	2	5	6.6	10	100	229	Brush
PAST	6	4.9	6.5	8	65	181	Brush
PAST	2	6.3	7.2	25	851	412	Brush
PAST	6	6.3	7.2	15	471	290	Brush

PAST	6	6.3	7.2	17	474	285	Brush
PAST	2	6.4	7.2	19	836	348	Brush
PAST	6	5.6	7	24	77	469	Brush
PAST	2	5.6	7	22	86	529	Brush
PAST	2	5.8	7	12	239	148	Brush
PAST	6	5.6	6.9	14	69	150	Brush
PAST	6	5.9	7	3	21	221	Brush
PAST	6	5.8	7	9	129	224	Brush
PAST	2	5.7	7	6	105	209	Brush
PAST	2	5.4	6.9	55	253	201	Brush
PAST	6	5.4	6.9	43	243	194	Brush
PAST	6	5.9	7	5	25	222	Brush
PAST	2	6	7.1	0	25	232	Brush
PAST	2	6.1	7.1	5	19	273	Brush
PAST	6	6.1	7.1	4	21	259	Brush
PAST	6	6	7	6	22	252	Brush
PAST	2	6.1	7.1	7	24	268	Brush
PAST	6	5.9	7.1	5	144	238	Brush
PAST	2	5.8	7.1	6	154	268	Brush
PAST	6	5.7	7.1	9	42	249	Brush
PAST	6	5.1	6.7	20	165	281	Brush
PAST	6	5.4	6.9	25	79	361	Brush
PAST	6	5.2	6.7	15	128	297	Brush
PAST	2	5.3	6.8	5	115	243	Brush
PAST	2	5.3	6.8	8	329	175	Brush
PAST	2	5	6.7	11	291	189	Brush
PAST	6	5.3	6.8	11	297	161	Brush
PAST	6	5.1	6.7	8	232	172	Brush
PAST	2	6	7.1	5	20	270	Brush
PAST	2	5.7	7	7	39	284	Brush
PAST	2	5.8	7	8	42	282	Brush
PAST	6	6	7.1	3	21	237	Brush
PAST	6	5.5	6.9	8	138	289	Brush
PAST	2	6	7.1	4	20	253	Brush
PAST	6	5.7	7	11	40	244	Brush
PAST	6	6.1	7.1	4	21	297	Brush
PAST	2	6.1	7.1	3	21	248	Brush
PAST	6	6	7	8	48	217	Brush
PAST	2	5.9	7	6	46	206	Brush
PAST	6	6.1	7.1	5	15	265	Brush
PAST	2	5.4	6.9	22	195	307	Brush
PAST	2	5	6.6	11	145	277	Brush
PAST	2	5.7	7	10	44	302	Brush
PAST	6	5.6	7	11	43	253	Brush
PAST	2	5.8	7	11	42	254	Brush
PAST	6	5.6	7	11	39	237	Brush
PAST	6	5.3	6.8	19	202	354	Brush
PAST	2	5.1	6.7	16	148	287	Brush
PAST	2	5.5	6.9	21	90	331	Brush
PAST	6	6	7	5	33	265	Brush
PAST	2	4.1	5.7	1	20	253	Brush
PAST	6	4.2	5.8	1	17	242	Brush

PAST	2	4.2	5.8	2	28	264	Brush
PAST	6	4.2	5.7	1	18	249	Brush
PAST	2	4.2	5.7	1	16	223	Brush
FRST	2	5.6	6.9	5	35	223	Beaty
FRST	6	5.1	6.6	2	28	157	Beaty
FRST	2	5.1	6.6	1	31	169	Beaty
FRST	6	5.5	6.8	1	63	264	Beaty
FRST	2	5	6.6	2	33	174	Beaty
FRST	6	5.5	6.7	5	43	244	Beaty
PAST	2	5.1	6.7	58	674	407	Beaty
PAST	6	4.8	6.5	32	458	280	Beaty
PAST	2	4.8	6.5	32	759	566	Beaty
PAST	6	5.4	6.9	25	542	412	Beaty
PAST	2	5.2	6.8	150	460	661	Beaty
PAST	6	4.9	6.5	75	425	504	Beaty
PAST	2	4.9	6.6	18	169	348	Beaty
PAST	6	4.9	6.5	14	158	320	Beaty
PAST	2	5.7	7	17	498	397	Beaty
PAST	6	5.7	7	19	420	422	Beaty
PAST	6	5.5	6.9	20	80	126	Beaty
PAST	2	5.5	6.9	26	87	153	Beaty
PAST	2	5.7	7	25	140	251	Beaty
PAST	6	5.6	6.9	10	93	183	Beaty
PAST	2	6.1	7	13	364	331	Beaty
PAST	6	6.1	7.1	21	391	299	Beaty
PAST	2	6.1	7.1	29	137	234	Beaty
PAST	6	6	7	17	104	194	Beaty
PAST	2	6.5	0	11	67	148	Beaty
PAST	6	5.9	7	7	59	127	Beaty
PAST	6	6.2	7.1	119	134	369	Beaty
PAST	2	6.9	0	42	248	545	Beaty
PAST	2	5.2	6.8	32	250	412	Beaty
PAST	6	5.4	6.9	27	233	360	Beaty
PAST	2	5.6	7	77	489	539	Beaty
PAST	2	6.9	0	52	625	581	Beaty
PAST	6	6.5	0	22	438	391	Beaty
PAST	6	5.9	7	31	354	515	Beaty
PAST	2	6.1	7.1	41	512	642	Beaty
PAST	2	6.7	0	54	625	564	Beaty
PAST	6	6.8	0	34	431	509	Beaty
PAST	2	6.2	7.1	4	44	217	Beaty
PAST	6	6.5	0	4	50	254	Beaty
PAST	2	5.9	7	4	70	227	Beaty
PAST	6	5.7	7	10	73	357	Beaty
PAST	6	5.5	7	8	27	96	Beaty
PAST	2	5.5	6.9	8	56	197	Beaty
PAST	6	5.6	7	6	40	204	Beaty
PAST	2	5.9	7	4	55	200	Beaty
PAST	2	5.8	7	8	93	236	Beaty
PAST	6	6.3	7.2	5	49	219	Beaty
PAST	2	6.5	0	5	54	218	Beaty
PAST	2	5.8	7	7	107	253	Beaty

PAST	2	5.4	6.9	23	537	686	Beaty
PAST	2	5.8	7	7	81	215	Beaty
PAST	6	5.3	6.8	38	244	203	Beaty
PAST	2	5.3	6.8	48	243	201	Beaty
PAST	6	5.6	7	9	59	476	Beaty
PAST	2	6	7.1	54	187	701	Beaty
PAST	6	5.4	6.9	15	186	264	Beaty
PAST	6	5.4	6.9	16	159	159	Beaty
PAST	2	7	0	6	80	407	Beaty
PAST	2	7.2	0	6	96	406	Beaty
PAST	6	7.1	0	11	109	396	Beaty
PAST	6	5.3	7	16	62	343	Beaty
PAST	2	5.2	6.9	6	54	289	Beaty
PAST	6	5.4	7	20	293	419	Beaty
PAST	2	5.4	7.1	21	308	471	Beaty
PAST	6	7	0	14	94	404	Beaty
PAST	2	7	0	8	87	378	Beaty
PAST	2	7	0	8	100	389	Beaty
PAST	6	7.1	0	7	106	382	Beaty
PAST	6	6.7	0	10	76	401	Beaty
PAST	2	7	0	87	113	366	Beaty
PAST	6	7	0	4	76	372	Beaty
PAST	6	6.1	7.2	7	44	401	Beaty
PAST	6	5	6.6	28	138	289	Beaty
PAST	2	5.2	6.8	62	226	238	Beaty
PAST	2	4.9	6.6	7	78	162	Beaty
PAST	6	6.1	7.1	4	43	215	Beaty
PAST	2	6.4	7.2	5	44	207	Beaty
PAST	2	5.8	7	5	39	206	Beaty
PAST	6	6	7.1	6	40	195	Beaty
PAST	2	5.5	6.9	6	24	102	Beaty
PAST	6	5.6	7	7	27	97	Beaty
PAST	6	6	7.1	12	85	166	Beaty
PAST	2	5.2	6.8	10	191	122	Beaty
PAST	6	4.9	6.6	5	73	167	Beaty
PAST	6	6	7.1	9	85	409	Beaty
PAST	6	6	7.1	9	76	180	Beaty
PAST	2	5.7	7	12	92	310	Beaty
PAST	6	5.3	6.8	7	47	294	Beaty
PAST	2	6.1	7.1	8	38	404	Beaty
PAST	6	4.2	5.8	1	16	250	Beaty
PAST	6	4.2	5.7	1	17	237	Beaty
PAST	2	5.8	6.9	1	24	252	Beaty
PAST	2	4.2	6.2	1	20	175	Beaty
PAST	6	4.1	6	1	18	183	Beaty
PAST	2	4.2	5.9	1	24	250	Beaty
PAST	6	4.2	5.6	1	18	260	Beaty
PAST	2	4.2	5.7	1	21	237	Beaty
FRST	2	4.9	6.6	4	40	194	Cloud
FRST	6	5.1	6.6	7	52	377	Cloud
FRST	6	5	6.6	4	40	204	Cloud
FRST	2	5.3	6.7	9	45	213	Cloud

FRST	6	4.9	6.6	8	42	203	Cloud
FRST	2	4.2	5.7	8	44	200	Cloud
FRST	6	4.2	5.6	27	51	255	Cloud
FRST	2	5	6.5	9	45	221	Cloud
FRST	6	4.9	6.6	7	42	171	Cloud
PAST	2	5.2	6.7	59	876	622	Cloud
PAST	6	5.1	6.6	77	866	616	Cloud
PAST	6	4.8	6.5	18	49	149	Cloud
PAST	2	4.4	6.3	18	59	204	Cloud
PAST	6	6.2	7.1	32	923	452	Cloud
PAST	2	6.2	7.1	42	995	567	Cloud
PAST	2	5.2	6.8	12	92	444	Cloud
PAST	6	5	6.6	13	73	414	Cloud
PAST	2	6.6	0	15	128	224	Cloud
PAST	6	6.2	7.1	11	99	182	Cloud
PAST	6	5.6	7.1	19	443	453	Cloud
PAST	6	5.1	6.9	15	77	387	Cloud
PAST	2	5.3	6.9	20	123	588	Cloud
PAST	2	5.5	7	26	480	492	Cloud
PAST	6	6.1	7.1	11	53	177	Cloud
PAST	2	5	6.7	32	245	236	Cloud
PAST	2	5.3	6.8	7	21	247	Cloud
PAST	6	5	6.7	6	17	169	Cloud
PAST	2	6.3	7.2	5	43	199	Cloud
PAST	6	4.9	6.6	13	79	161	Cloud
PAST	2	5.3	7	5	58	290	Cloud
PAST	6	4.9	6.9	5	56	279	Cloud
PAST	2	4.8	6.8	5	53	283	Cloud
PAST	6	4.8	6.9	4	52	254	Cloud
PAST	2	4.8	6.9	4	50	266	Cloud
PAST	6	4.9	6.9	5	54	277	Cloud
PAST	2	4.8	6.8	3	52	227	Cloud
PAST	6	4.8	6.8	3	52	227	Cloud
PAST	2	4.7	6.8	4	52	238	Cloud
PAST	6	4.7	6.7	3	51	223	Cloud
PAST	6	4.9	6.8	4	54	279	Cloud
PAST	2	4.8	6.8	4	56	269	Cloud
PAST	2	4.8	6.8	3	52	555	Cloud
PAST	6	4.8	6.9	5	52	276	Cloud
PAST	2	5	6.9	5	52	307	Cloud
PAST	6	4.9	6.9	4	58	287	Cloud
PAST	2	5.7	7	4	63	256	Cloud
PAST	6	4.7	6.7	3	51	226	Cloud
PAST	2	5.8	7	2	21	183	Cloud
PAST	6	5.9	7	2	28	222	Cloud
PAST	2	5.9	7	2	25	197	Cloud
PAST	6	5.9	7	4	52	220	Cloud
PAST	6	6.1	7	2	28	236	Cloud
PAST	6	6	7	1	27	244	Cloud
PAST	2	6.3	7.1	6	48	231	Cloud
PAST	6	6.1	7.1	5	56	247	Cloud
PAST	2	6	7	3	26	222	Cloud

PAST	6	5.9	7.1	3	22	200	Cloud
PAST	2	6	7	3	33	211	Cloud
PAST	6	5.9	6.9	3	25	214	Cloud
PAST	2	5.9	7	3	23	189	Cloud
PAST	6	6	7	6	35	221	Cloud
PAST	2	6	7.1	3	33	205	Cloud
PAST	6	6	7	4	30	226	Cloud
PAST	6	4.2	6	2	20	184	Cloud
PAST	2	4.2	6.3	1	26	173	Cloud
PAST	2	5.9	7	1	23	264	Cloud
PAST	2	6.1	7	1	22	259	Cloud
PAST	2	6.1	7.1	1	24	271	Cloud
PAST	6	6.1	7	2	26	284	Cloud
PAST	2	6	6.9	1	21	266	Cloud
PAST	6	6.1	7	1	21	257	Cloud
PAST	6	6	6.9	1	21	222	Cloud
PAST	6	6.1	7	2	29	302	Cloud
PAST	6	6	7	1	23	248	Cloud
PAST	2	4.8	6.8	4	55	260	Cloud
PAST	6	6.1	7	4	53	292	Cloud
PAST	2	5.5	6.7	1	20	161	Cloud
PAST	6	4.2	5.7	1	20	165	Cloud
FRST	2	5.2	6.7	7	43	204	Cherokee
FRST	6	5.2	6.7	2	30	119	Cherokee
FRST	2	5.2	6.6	6	39	201	Cherokee
FRST	6	5.1	6.6	8	35	163	Cherokee
FRST	2	5.2	6.6	11	46	207	Cherokee
FRST	6	5.2	6.6	5	37	142	Cherokee
FRST	2	5.1	6.6	8	42	199	Cherokee
FRST	6	4.9	6.7	8	41	182	Cherokee
FRST	2	5.2	6.6	12	46	200	Cherokee
FRST	6	4.9	6.6	5	43	176	Cherokee
PAST	2	4.9	6.6	32	401	509	Cherokee
PAST	6	4.8	6.5	24	376	544	Cherokee
PAST	2	5.4	6.9	51	333	532	Cherokee
PAST	6	5.5	6.9	89	253	530	Cherokee
PAST	2	5.4	6.9	99	838	937	Cherokee
PAST	6	5.4	6.9	83	566	706	Cherokee
PAST	2	4.7	6.4	58	147	277	Cherokee
PAST	6	4.8	6.5	41	150	287	Cherokee
PAST	2	6	7	53	789	804	Cherokee
PAST	6	5.8	7	46	702	723	Cherokee
PAST	2	5.8	7	35	583	614	Cherokee
PAST	6	5.6	6.9	32	379	434	Cherokee
PAST	2	5.5	6.9	67	1030	762	Cherokee
PAST	6	5.4	6.9	75	814	722	Cherokee
PAST	2	5.2	6.8	11	55	219	Cherokee
PAST	2	5.3	6.8	16	234	211	Cherokee
PAST	6	5.3	6.8	8	189	168	Cherokee
PAST	2	5.3	6.8	15	230	207	Cherokee
PAST	6	5.1	6.7	18	177	170	Cherokee
PAST	6	5.2	6.8	8	59	223	Cherokee

PAST	2	5	6.6	23	210	192	Cherokee
PAST	6	5	6.6	23	75	334	Cherokee
PAST	2	5.1	6.7	29	93	452	Cherokee
PAST	2	6.4	7.2	89	618	540	Cherokee
PAST	6	6.4	7.2	23	406	366	Cherokee
PAST	2	6.7	0	54	657	263	Cherokee
PAST	6	6.7	0	51	443	214	Cherokee
PAST	6	5.7	7	11	88	171	Cherokee
PAST	2	5.5	6.9	16	93	178	Cherokee
PAST	2	5.5	6.9	33	194	283	Cherokee
PAST	2	5.4	6.9	9	215	472	Cherokee
PAST	6	5.6	7.1	7	187	229	Cherokee
PAST	2	6.3	7.2	9	445	460	Cherokee
PAST	6	5.6	7	8	291	246	Cherokee
PAST	6	5	6.8	4	93	235	Cherokee
PAST	6	6.1	7.3	13	295	292	Cherokee
PAST	6	6.3	7.2	20	428	404	Cherokee
PAST	2	6.5	0	40	576	463	Cherokee
PAST	6	6.3	7.2	20	349	352	Cherokee
PAST	2	6.5	0	41	546	447	Cherokee
PAST	2	5.4	6.9	11	156	238	Cherokee
PAST	2	4.8	6.8	11	333	297	Cherokee
PAST	6	6	7.3	31	297	316	Cherokee
PAST	2	5.2	6.8	22	105	405	Cherokee
PAST	6	5.6	7	14	122	251	Cherokee
PAST	6	5.1	6.7	11	68	277	Cherokee
PAST	2	5.9	7	15	269	403	Cherokee
PAST	6	6	7.1	18	265	301	Cherokee
PAST	6	5	6.6	8	73	299	Cherokee
PAST	2	5.6	7	37	460	418	Cherokee
PAST	2	6.1	7.1	36	546	456	Cherokee
PAST	2	6.9	0	33	188	202	Cherokee
PAST	6	6.8	0	24	226	207	Cherokee
PAST	2	6.8	0	28	220	209	Cherokee
PAST	6	6.9	0	24	241	202	Cherokee
PAST	2	6.3	7.2	4	93	267	Cherokee
PAST	6	6	7.1	3	86	242	Cherokee
PAST	2	6	7.1	4	89	248	Cherokee
PAST	6	6.3	7.2	4	89	280	Cherokee
PAST	2	6	7	6	33	222	Cherokee
PAST	6	5.9	7	4	43	229	Cherokee
PAST	2	5.9	7	5	33	222	Cherokee
PAST	6	6	7	6	48	235	Cherokee
PAST	6	5.9	7.1	4	93	256	Cherokee
PAST	2	5.9	7.1	5	93	276	Cherokee
PAST	6	6	7.1	4	90	253	Cherokee
PAST	2	6	7.1	5	91	265	Cherokee
PAST	6	6	7.1	5	92	256	Cherokee
PAST	2	5.9	7.1	3	92	264	Cherokee
PAST	6	5.9	7.1	4	99	273	Cherokee
PAST	2	5.2	6.7	1	43	142	Cherokee
PAST	6	5.6	6.8	8	72	142	Cherokee

PAST	2	5.7	6.8	12	329	506	Cherokee
PAST	6	6.3	7.1	11	134	261	Cherokee
PAST	2	6.9	0	25	210	198	Cherokee
PAST	6	6.8	0	26	214	202	Cherokee
PAST	2	6.3	7.1	4	50	142	Cherokee
PAST	6	5.1	6.7	3	67	180	Cherokee
PAST	2	6	7.1	4	92	261	Cherokee
PAST	2	6	7	13	365	406	Cherokee
PAST	6	5.5	6.8	9	202	300	Cherokee
PAST	2	5.4	6.9	189	158	364	
PAST	6	5.6	6.9	151	128	290	
PAST	2	5.4	6.9	120	154	334	
PAST	6	5.1	6.6	94	96	254	
PAST	2	4.9	6.5	3	63	195	
PAST	6	4.6	6.4	2	57	145	
PAST	2	5.8	7	91	171	329	
PAST	6	5.7	7	74	157	216	
PAST	2	5.7	7	40	119	361	
PAST	6	5.8	7	40	118	358	
PAST	2	5.8	7	73	156	347	
PAST	6	5.38	7	48	138	251	
PAST	2	5.09	7	121	149	471	
PAST	6	6	7.1	87	146	427	
PAST	2	4.4	6.3	3	45	149	
PAST	6	4.3	6.3	2	37	124	
PAST	2	4.5	6.4	2	31	137	
PAST	6	4.4	6.4	2	28	113	
PAST	2	5.7	7	59	158	332	
PAST	2	5.9	7	49	137	274	
PAST	2	5.8	7	59	102	273	
PAST	2	5.9	7	166	161	400	
PAST	6	5.7	7	37	157	255	
PAST	6	6.1	7.1	31	120	209	
PAST	6	5.8	7	38	92	199	
PAST	2	5.7	7	116	129	312	
PAST	6	5.7	7	88	120	232	
PAST	2	6	7.1	73	175	275	
PAST	6	6.1	7.1	48	150	217	
PAST	2	6	7.1	76	199	253	
PAST	6	6.2	7.1	49	217	221	
PAST	2	4.7	6.5	3	41	173	
PAST	2	4.2	6.1	3	30	108	
PAST	2	4.1	6.1	3	25	118	
PAST	6	4.1	6.1	3	20	102	
PAST	6	4.2	6.1	3	29	99	
PAST	6	4.3	6.1	2	37	134	
PAST	6	4.5	6.4	4	76	142	
PAST	2	5.8	7	11	173	361	
PAST	2	4.4	6.2	3	56	141	
PAST	6	6.5		39	119	319	
PAST	2	6.5		39	113	359	
PAST	2	5.3	6.8	6	96	270	

PAST	2	5.2	6.8	4	94	202
PAST	6	4.6	6.4	3	100	163
PAST	2	4.5	6.4	4	67	142
PAST	6	5.7	7	10	165	350
	6	6	7.1	82	126	267
PAST	2	5.9	7	178	198	567
PAST	6	5.9	7	113	132	367
PAST	6	5.8	7	4	56	168
PAST	2	4.5	6.3	8	37	252
PAST	2	6.2	7.2	8	56	182
PAST	6	4.4	6.3	4	34	303
PAST	2	5.8	6.9	6	34	251
PAST	2	5.7	7	9	43	264
PAST	6	5.6	7	12	46	242
PAST	6	5.6	7	14	41	255
PAST	2	5.9	6.9	1	23	253
PAST	2	6.1	7	2	22	263
PAST	6	6.2	7.1	1	20	266
PAST	2	6.1	7	1	22	255